

# FLUCTUATIONS IN INCOME & EMPLOYMENT

WITH SPECIAL REFERENCE  
TO RECENT AMERICAN EXPERIENCE  
AND POST-WAR PROSPECTS

BY  
THOMAS WILSON

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## PREFACE

### TO THIRD EDITION

IN preparing this new edition, I have made a good many changes in order to bring it more up to date and in order to reflect some of the modifications in my own views. In particular, I have revised the second chapter substantially and I hope its closing paragraphs will provide the student with a more intelligible summary of modern theory. A short postscript has also been added to the last chapter.

With regard to the empirical study of the trade cycle, I have become increasingly convinced of the importance of breaking down the great aggregates, such as consumption and investment, with which most theories deal. A detailed study of structural changes is essential, not merely to an understanding of structural unemployment, but to any adequate diagnosis of fluctuations in total effective demand. In a brief sketch of the sort presented here, one can do little more than mention developments of this kind, but I would now underline what I said originally about such matters, in particular in Chapters VII and XIII.

T. W.

UNIVERSITY COLLEGE,  
OXFORD.  
*September 20th, 1947.*

## PREFACE

### TO FIRST EDITION

THE future of democratic government will depend in no small measure upon its success in solving the problem of unemployment. Democracy can offer to the individual a degree of personal liberty in thought and action which he cannot hope to obtain under despotic rule, but unless it can also assure him greater economic security in the future than he has enjoyed in the past there will be a poor chance of preserving a peaceful democratic order after the Nazi tyranny has been finally overthrown. If democratic governments ever again allow the economic forces to get out of control and bring the world to the parlous conditions of the nineteen-thirties, then in sheer despair men may once more adopt terrible remedies and prefer the ruthless methods of the demagogue, who at least offers them work, to the



civil rights of a democratic order which allows them to waste the years in tedious idleness and bitter poverty. It may be true, as Lord Vansittart would have us believe, that the growth of Fascism and the outbreak of war are largely due to the traditional aggressiveness of the German people, but no one would deny that if there had not been six million unemployed in the Weimar Republic the fierce propaganda of Hitler and his agents would have fallen on less attentive ears. Of course it is nonsense to say that Germany was driven to war by irresistible economic forces; as a direct cause of the war legitimate economic considerations, as distinct from the gangsters' dream of world-wide theft, were of small importance. The influence of the depression was more subtle and indirect in that it created the conditions necessary for a successful Nazi coup from which subsequent events have followed as an inevitable and ever more devastating consequence. The moral for the future is obvious.

The failure of democracy before the war was the outcome of mistaken ideas in the highest scientific quarters, as well as of excessive nationalism and class conflict. During the critical fifteen years which followed the Armistice the economists gave much sound advice, especially on international trade, which was often disregarded, but they failed to provide any kind of adequate solution for cyclical unemployment. The majority still believed in the Gladstonian virtues of a permanently balanced budget and prescribed strict economy for the government and the individual as the fitting remedy for idle factories and idle men. This policy had disastrous consequences and its application by Chancellor Brüning did much to accentuate the economic chaos from which the Nazi despotism ultimately emerged. Hitler, himself, shared the characteristic German fear of inflation, but he did not hesitate to provide public works and he offered the worker full employment as well as concentration camps and the threat of war. Meanwhile the democracies floundered along, achieving some success but failing to recover a full degree of prosperity. In these circumstances the old orthodoxy of the economists began to weaken. The U.S.A. and Sweden were making new experiments and the writings of a number of heretics shook the foundations of the old belief. Finally, it was left to Mr. Keynes to deliver the *coup de grâce* in his *General Theory of Employment, Interest, and Money*. From that blow the deflationists are never likely to recover. A decline in consumption may, of course, be necessary to prevent an inflation—that is the central problem of war finance—but there are few left who would advocate increased thrift as the cure for economic depression.

More recently the theoretical confusion which accompanied the

confusion in the real world has slowly begun to diminish. It is true that many bitter controversies are still unsettled, but without any doubt the economists are much more agreed than they have been for many years. A short time ago a group of economists were invited to form an advisory committee on economic problems, and gossip has it that the proposal was greeted with scepticism in many quarters on the ground that the economists could never agree. One critic is said to have applied to them the unkind remark which was once made about the Poles: "*Un polonais, un charmeur; deux polonais, deux avis différents; trois polonais, la question polonaise.*" The sceptics, however, have been confounded, and the gossips point, open-mouthed, to the remarkable degree of unanimity which the economists are said to have achieved in dealing with the problems of war. There is little reason to suppose that this unanimity will entirely disappear when peace once more returns. In particular, there is likely to be considerable agreement on employment policy and the solution of this problem at least should lie within the competence of the parliamentary state.

The purpose of this little book is, first, to examine the fundamental causes of the instability of effective demand, and then to discuss the possible forces which set this unstable mechanism in motion. Why should there be want in the midst of plenty in some years, while in other years goods are scarce and prices are high? It will appear that many of the existing disputes about the trade cycle are largely the result of different factual assumptions and an attempt will be made to draw up a list of alternative hypotheses, each of which may be true in certain circumstances. In the second part of the book I have tried to test the utility of current theories in interpreting the cyclical fluctuations in the U.S.A. between 1919 and 1937. To perform that task adequately would, of course, require a much longer and more scholarly work, but several conclusions of a very provisional nature have been drawn with regard to underconsumption, technical advance, and banking policy. The non-specialist will be well advised to read part one before he attempts to read part two, and it is also hoped that the first part will in itself be of some use to the student since so much recent theory can only be found in highly complicated and somewhat scattered articles in the economic journals. Finally, I have ventured to refer to post-war prospects and to the methods by which the trade cycle may be controlled in the future. I should perhaps make it clear that the book was written before I accepted a temporary appointment in the Civil Service and publication was delayed for a number of reasons connected with the war,

In developing my arguments, in particular in Chapters II and VI, I have received the most invaluable advice from Mr. N. Kaldor, whose outstanding work on speculation has done so much to clarify the problem of changes in effective demand. I am deeply indebted to Mr. E. F. M. Durbin for his keen criticism, his useful suggestions, and his constant emphasis on the importance of empirical investigation. I must acknowledge the kindness of Professor F. A. Hayek in discussing the chapter on capital intensity (Chap. VI) and of my first teacher, Professor H. O. Meredith, in reading and discussing part of the manuscript. Dr. F. Benham, Miss D. J. Parry, and Miss O. Lawrence have given me assistance in the task of publishing the manuscript, and the University of London has made a grant to cover part of the cost. Finally, I must refer to the courtesy and efficiency with which Messrs. Pitman have undertaken their part of the work.

T. W.

LONDON.

*September 8th, 1941.*

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PART I  
A REVIEW OF TRADE CYCLE THEORY

“Abstractions scalped with a palette-knife  
Without reference to this particular life.  
And so it has gone on.”

—LOUIS MACNEICE.



## CHAPTER I

### EFFECTIVE DEMAND

IN classical literature, the discussion of effective demand falls into two distinct and mutually inconsistent divisions. First, there is the Law of Markets, which is usually associated with the name of J. B. Say. Second, there is the theory of forced savings and a natural rate of interest. According to the first of these, supply creates its own demand and to talk of general over-production is therefore to talk nonsense. The demand for one commodity is earned in the production of other commodities and if one trade is depressed this can only be because supply and demand are out of harmony in that particular branch of activity, and not because there is a general deficiency of purchasing power. As compared with some of the more crude of the under-consumptionist beliefs, which have always existed side by side with orthodox theory, this doctrine no doubt represented a considerable analytical advance,<sup>1</sup> but as an elucidation of dynamic economics it was inadequate and often misleading. Important possibilities were obscured and the picture it presented of the economic system was too cheerful to be realistic. It was natural, therefore, that when the classical economists came to study the current monetary problems of their day, they evolved new ideas about forced savings and the natural rate of interest which, if they were true, reduced the Law of Markets to the position of a rather improbable special case.

1. Say's position is clearly presented in the following quotation. "It is worth while," he says, "to remark that a product is no sooner created than it, from that instant, affords a market for other products to the full extent of its own value. When the producer has put the finishing hand to his product, he is most anxious to sell it immediately, lest its value should vanish in his hands. Nor is he less anxious to dispose of the money he may get for it; for the value of the money is also perishable. But the only way of getting rid of money is in the purchase of some product or other. Thus the mere circumstance of the creation of one product immediately opens a vent for other products."<sup>2</sup> "The same principle," he continues, "leads to the

<sup>1</sup> Cf. M. Dobb (*Political Economy and Capitalism*, p. 94): "The classical Law of Markets . . . has at least the virtue of attempting to represent the process of production and exchange as a unity." It is obviously superior to such crude inflationary doctrines as the A plus B theorem of Social Credit.

<sup>2</sup> *Treatise on Political Economy*, Principis edition, 1812, p. 167.



conclusion that the encouragement of mere consumption is no benefit to commerce; for the difficulty lies in the supplying the means, not in stimulating the desire for consumption and we have seen that production alone furnishes those means. Thus it is the aim of good government to stimulate production; of bad government to encourage consumption. For the same reason that the creation of a new product is the opening of a new vent for other products, the consumption or destruction of a product is the stoppage of a vent for them. This is no evil when the end of the product has been answered by its destruction, which is the satisfying of some human want, or the creation of some new product designed for such satisfaction. . . . The consumed products have fulfilled their office, as it is natural and fitting that they should: the consumption, however, has opened no new vent, but just the reverse."<sup>1</sup>

These passages contain in summary much of what was subsequently written by the classical and neo-classical economists on the problem of effective demand, but certain refinements were introduced. It was always open to the underconsumptionists to point out that Say's law would only hold so long as savings were used to buy instruments of production. If, however, consumption were reduced, it would appear that there would be no demand for new equipment and the savings would be sterile. Consumption is the end of all production, and if consumption is assailed in the name of virtuous thrift, will not investment perish as well? Views of this kind expounded again and again by Malthus and Sismondi, were briefly considered by the Ricardian school and uncompromisingly rejected. The refutation was on two grounds. First, it was said that the criticism assured a hypothetical state of affairs, which was far removed from the real world. Ricardo admits that: "If every man were to forgo the use of luxuries and be intent only on accumulation, a quantity of necessaries might be produced for which there would not be any immediate consumption. . . . If men ceased to consume they would also cease to produce. This admission does not impugn the general principle. In such a country as England, for example, it is difficult to suppose that there can be any disposition to devote the whole capital and labour of the country to the production of necessaries only."<sup>2</sup>

The second ground for the rejection of Malthusian ideas was more

<sup>1</sup> *Ibid.*, pp. 172-180. For a brief discussion of the development of Say's ideas, see P. N. Rosenstein-Rodan: "A Co-ordination of the Theories of Money and Price," *Economica*, August, 1936.

<sup>2</sup> *Principles* (Everyman Edition), p. 95.

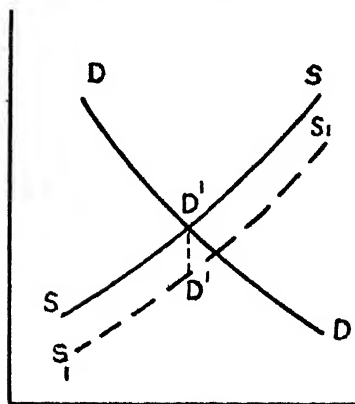
general. Savings can never be excessive, for if they increase beyond a certain limit, the rate of interest will fall so low that people will prefer to spend their money and the volume of savings will fall. "There cannot," writes Ricardo, "be accumulated in a country any amount of capital which cannot be employed productively, until wages rise so high in consequence of the rise of necessaries and so little remains for the profits of stock, that the motive for accumulation ceases."<sup>1</sup> This proposition was inadequately explained till the neo-classical school made its contribution to the theory of saving in the form of the time-preference theory of the rate of interest. The new theory stated, as a psychological fact, that people prefer present to future satisfactions. To induce them to forgo the greater immediate pleasure in favour of one at a more distant date, they must be given some additional compensation in the form of interest payments. The volume of savings is thus a function of the rate of interest. If this is so, and if the rate of interest is simply determined by productivity and thrift, there can be no idle savings. The capital market can then be described in precisely the same terms as the market for any commodity.<sup>2</sup> In the absence of any speculative changes in stocks, an increase in the demand for tea cannot, for a time, cause an increase in the consumption of tea. Purchases, however, must be equal to sales, in to-day's market as well as in the future, and this can only happen if the price of tea rises to such an extent that a sufficient number of would-be buyers are induced to cut down their orders. The high price will stimulate production, supply will increase, price will fall and some of the excluded buyers will now be able to make their purchases, until in the long period demand will be made equal to supply, in the manner described by Marshall. Similarly, in the market for loans, the first effect of an increased propensity to save will be a fall in the rate of interest; this will cause an immediate fall in the supply of loans until the aggregate volume of savings has fallen to its former level, and borrowing and lending are equal. After a time lag, however, investment may also be stimulated, borrowings may thus be increased, and the rate of interest may begin to rise. Finally, as compared with the initial situation, equilibrium will probably be reached with a higher level of savings and investment and a lower rate of interest; the exact position of equilibrium will be determined by the relative elasticities of the demand and supply functions. Even, however, if investment does not increase after a time lag, there will be no excess savings, for the rate

<sup>1</sup> *Op. cit.*, p. 193.

<sup>2</sup> Cf. Kaldor, "Money Wages in Relation to Unemployment," *Review of Economic Studies*, June, 1939.

of interest will have fallen and savings in excess of the existing demand for loans will have been discouraged.<sup>1</sup>

The problem can be more easily elucidated with the aid of an ordinary supply and demand diagram. The demand for and supply of loans are measured along the  $x$ -axis, and the rate of interest along the  $y$ -axis. The  $DD$  curve represents the long period demand for loans for investment purposes while the  $SS$  curve represents the long period supply curve of loans reflecting current thriftiness.<sup>2</sup> The former will slope downwards from the left, since it is assumed that a lower rate of interest will lead to a greater demand for funds; the



latter will slope upwards from the left, since higher rates will encourage more savings. Suppose, now, that the supply curve of savings moves to the right, i.e. the propensity to save increases. New investment projects cannot be started immediately, which means that in the short period the  $DD$  curve is inelastic and falls vertically beyond the former point of equilibrium ( $D^1D^1$ ). There will, however, be such a fall in the rate of interest that, in spite of the increased propensity to save, aggregate savings will be unchanged. This must occur, since total lending must be equal to borrowing. As time elapses and the demand for new loans increases, the curve  $D^1D^1$  will gradually fall over till it reaches the position  $DD$ , and long period equilibrium will be reached. At no time during this process will the aggregate supply of savings be unequal to the aggregate demand of entrepreneurs for investible funds.

It must be emphasized that the theory does not depend upon some dubious assumption to the effect that consumption and investment are independent, or that the purchasers of producers' goods are more sensitive to changes in the rate of interest than to changes in the level of consumers' demand. Let us consider the special case where the demand curve for loans is quite inelastic with respect to the rate of interest. In these circumstances, changes in the propensity to save can never alter the aggregate amount actually saved, for the rate of

<sup>1</sup> Cf. Taussig, *Principles of Economics*, vol. II, p. 84 (1939 edition).

<sup>2</sup> The terms "saving" and "investment" are used in their *ex ante* sense. (Cf. below, Ch. IV.) The terms "productivity" and "thrift" mean "the demand for funds" and "the supply of savings," respectively.

interest will always fluctuate to the degree necessary to offset the effect of the former on the latter. In short, the vertical  $D^1D^1$  curve will represent the long period as well as the short period demand schedule, and savings and investment will still be equal.<sup>1</sup>

The argument must be qualified, with the reminder that it only holds if hoards are unchanged. Recent theories of banking and liquidity preference have seriously undermined the classical position and left little room for optimism about the effects of a high propensity to save. But a rather different form of attack has been made by some members of the Keynesian school. In his pamphlet on Keynes's *General Theory of Employment, Interest, and Money*, Mr. Lerner argues that an increased propensity to save cannot lead to an increase in either investment or net savings; this appears to be so because it follows from the definition of the terms. "This diminution in consumption (if others have not changed their expenditure on consumption goods) diminishes income (by diminishing the income of those who sell consumption goods) and therefore leaves income minus consumption, which is by definition saving, the same as before. Others have saved as much less as he has saved more, so that aggregate saving is unchanged and equal to the unchanged investment. If there is no change in investment there can be no change in saving."<sup>2</sup> It is clear, however, from the exposition of the Law of Markets given above, that this attack misses the mark.<sup>3</sup> Until investment has had time to increase, there will be no fall in income in the consumers' goods industries, for consumption will not have decreased. *The fall in aggregate consumption can only proceed pari passu with the rise in aggregate*

<sup>1</sup> This theory was developed in a slightly different form in the works of Ricardo. He argued that a fall in the rate of profit would not cause unemployment because it would discourage saving and bring about an increase in the "unproductive" expenditure of the capitalists. (Cf. *Principles*, Everyman ed., p. 193.) In a letter to Malthus he writes: "I know of no one who has recommended a perseverance in parsimony even after the profits of capital have vanished. I have never done so and I should be amongst the first to reprobate the folly of the capitalist in not indulging himself in unproductive consumption." (*Letters to Malthus*, edited by J. Bonar, 1887, p. 190.) He rejected the contention that a fall in capitalists' savings would reduce the wages-fund and thus the demand for labour. For suppose that profits are low as the result of a high propensity to save; then wages will be above the subsistence level and it follows that, if the wages-fund is now reduced because the level of profits is low, employment can be maintained by cutting wage-rates. Everything will now rest upon the possibility of changing the level of real wages. (Ricardo believed that this could be done, but Malthus was more sceptical.) Alternatively, the rate of profit might be maintained in face of an increased propensity to save by an increase in the population, but this as Malthus pointed out, is only a long-term solution. (Cf. Malthus, *Principles*, London School of Economics Reprints, p. 320.) <sup>2</sup> p. 9.

<sup>3</sup> By employing the *ex post* concepts Mr. Lerner has been led to assume what he has to prove. See Chapter IV below.

*investment, and an increased propensity to save will not reduce the level of employment.*<sup>1</sup>

The classical argument is, therefore, unshaken by Mr. Lerner's attack. It is true that if a part of the increased savings was withheld from the investment market and hoarded, the theory would break down, but hoarding, on a scale large enough to be significant, was not regarded as probable by the orthodox school. Money is not demanded for its own sake, but only as a means of exchange and a store of value. In Marshall's words: "In every society there is some fraction of their income which people find it worth while to keep in the form of currency; it may be a fifth, or a tenth, or a twentieth. A large command of resources in the form of currency renders their business easy and smooth, and puts them at an advantage in bargaining, but on the other hand it locks up in a barren form resources that might yield an income of gratification if invested, say, in extra furniture: or a money income if invested in extra machinery or cattle."<sup>2</sup> In Mr. Hawtrey's words: "The classical economists assumed that in a civilized community with an organized investment market this condition would be fulfilled or at any rate that no savings would be held for any considerable time in the form of idle cash, except by ignorant people of primitive instincts whose resources would be a negligible fraction of those of the community."<sup>3</sup> The amount of cash held was believed to be a function of income. Other factors, such as changes in expenditure habits, or the periodicity of receipts, may exercise some influence but only slowly over a long period, and there is certainly no reason to suppose that an increased propensity to save will in itself alter these secondary factors to an appreciable extent.

The major drawback to the classical theory lies in its extreme optimism. If everything worked as smoothly as this argument would suggest the fluctuations in the real world would be difficult to explain. The economic system ought to show a stability which is in effect quite foreign to it; and the wide cyclical swings and the strong cumulative movements could not take place.

<sup>1</sup> Mr. Lerner seems to be reasoning in a circle. First he implies that, for some reason, the rate of interest does not fall when the propensity to consume decreases. Thus total consumption declines and the entrepreneurs concerned must sell securities. Yet if it is asked why the rate of interest has not fallen, the answer is that the effect of increased thrift has been offset by the security sales of the entrepreneurs. But those sales are the *consequence*, not the *cause*, of the fact that the rate of interest has not fallen. As Professor Robertson demonstrated many years ago, an increased propensity to save can only have deflationary effects if it is accompanied by an increased propensity to hoard. ("Saving and Hoarding," *Economic Journal*, 1933. See also Ch. II below.)

<sup>2</sup> *Money and Credit*, p. 45.

<sup>3</sup> *Capital and Employment*, p. 165.

2. Side by side with the doctrine that supply creates its own demand, there developed another theory which was inconsistent with it. The notion that an increase in the volume of money would lead to an increase in the volume of output goes back to the writings of Hume, Potter, and Law.<sup>1</sup> These ideas were developed still further by a Physiocratic writer, Saint Peravy,<sup>2</sup> who showed that by increasing the amount of money, the recipients of fixed incomes would be made to suffer. This was the beginning of the theory of forced savings. Professor Hayek,<sup>3</sup> has shown that Bentham began to work out a similar theory in 1801, but he concludes that it was really Thornton who drew the attention of English economists to the matter.<sup>4</sup> The theory of forced savings was also developed by Malthus, Dugald Stewart, Lauderdale, Torrens, and Ricardo.

At a later stage it began to be associated with another idea, the idea that there is a natural rate of interest and if bank rate is allowed to diverge from this rate, the amount of money in the country will be changed. In reply to the argument of the Anti-Bullionists to the effect that so long as there is a positive rate of interest, money will only be borrowed for productive purposes, Thornton emphasized the necessity of distinguishing between the "rate of mercantile profit" and the "rate of interest taken at the bank,"<sup>5</sup> and the new ideas came to be adopted by the rest of the Bullionists. Although Ricardo did not believe that the rate of interest alone was a suitable instrument to prevent an over-issue of notes, which might always occur if they were not convertible,<sup>6</sup> he too discusses the natural rate<sup>7</sup> of interest in his *Principles*.<sup>8</sup>

<sup>1</sup> Cf. Viner, *Studies in the Theory of International Trade*, p. 188.

<sup>2</sup> Cf. Viner, *op. cit.*, p. 187.

<sup>3</sup> Cf. "A Note on the Development of the Doctrine of Forced Savings," *Quarterly Journal of Economics*, 1933, p. 123.

<sup>4</sup> Cf. *Paper Credit*, p. 239. The Library of Economics, Section I, No. 2. "It must be admitted that, provided we assume an excessive issue of paper to lift up, as it may for a time, the cost of goods though not the price of labour, some augmentation of stock will be the consequence; for the labourer, according to this supposition, may be forced by his necessity to consume fewer articles, though he may exercise the same industry. But this saving, as well as any additional one which may arise from a similar defalcation of the revenue of the unproductive members of the society, will be attended with a proportionate hardship and injustice."

<sup>5</sup> *Paper Credit*, p. 235 *et seq.*, and cf. Viner, p. 149, and Hayek, *Prices and Production*, p. 13.

<sup>6</sup> Viner, *op. cit.*, p. 150.

<sup>7</sup> The term "natural rate" is ambiguous but, for the moment, it may be described as that rate at which savings and investment would be equal, at a given level of income, i.e. the rate which would ensure stability of income. (See below, Ch. IV.)

<sup>8</sup> Cf. p. 246 (Everyman ed.): "... it (the rate of interest for money) is not regulated by the rate at which the bank will lend, whether it be 5, 4, or 3 per cent, but by the rate of profits which can be made by the employment of capital and which

This new theory was clearly elucidated by Joplin, who was the first to show the connection between forced savings and a divergence between savings and investment—

"With a metallic currency, a person by borrowing money of a banker does not alter the currency: he only obtains the power of consuming those commodities which have been saved from consumption by others. But with our currency the case is different. If a person borrows one thousand pounds of a banker who issues his own notes, the banker has seldom any means of knowing whether he has lent him money that has been previously saved or not. He lends him his notes, and if either he or some other person should not have previously had a thousand pounds' worth of notes deposited with them, he has at once added a thousand pounds to the capital and a thousand pounds to the currency of the country. To the party who has borrowed the money, he has given the power of going into the market and purchasing a thousand pounds' worth of commodities, but in doing this he raises their price and diminishes the value of the money in previous circulation to the extent of one thousand pounds, so that he acquires the commodities by depriving those of them who held the money by which they were represented and to whom they properly belonged. On the other hand, if a person pays a thousand pounds into the hands of a banker, and the currency is contracted to that extent, both one thousand pounds of capital and one thousand pounds of currency are destroyed. The commodities represented by the money thus saved and cancelled are thrown on the market, prices are reduced, and the power of consuming them is obtained by the holders of the money left in circulation."<sup>1</sup>

The significance of this new theory can be illustrated with the help of the curves already employed.<sup>2</sup> Let us suppose once more that the

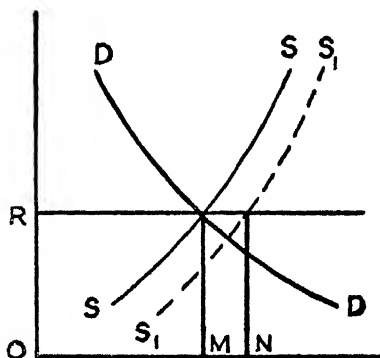
is totally independent of the quantity or of the value of money. Whether a bank lend one million, ten million or a hundred million, they would not permanently alter the market rate of interest; they would only alter the value of money. In one case ten or twenty times more money might be required to carry on the same business than what might be required in the other. The applications to the bank for money then, depend on the comparison between the rate of profits that may be made by the employment of it and the rate at which they are willing to lend it. If they charge less than the market rate of interest, there is no amount of money which they might not lend; if they charge more than that rate none but spendthrifts and prodigals would be found to borrow of them. We accordingly find that when the market rate of interest exceeds the rate of 5 per cent at which the bank uniformly lends, the discount office is besieged with applicants for money; and, on the contrary, when the market rate is even temporarily under 5 per cent, the clerks of that office have no employment." (Ricardo tends to identify the natural with the market rate of interest.)

<sup>1</sup> "On the two different values of money," in *An Illustration of Mr. Joplin's Views on the Currency*, Letter V, pp. 26-7.

<sup>2</sup> Page 6 above.

propensity to save increases, i.e.  $SS$ , the supply curve of loans, moves to the right. If the price of loans is solely determined by productivity and thrift, then, as we have seen, the rate of interest will fall to the extent necessary to ensure equality between savings and investment. Suppose, however, that some third factor, such as banking policy, prevents this fall from occurring: for example, let the rate of interest remain unchanged at  $OR$ . Then, while savings will have increased from  $OM$  to  $ON$ , investment will be unchanged at  $OM$ . There will thus be a decline in total expenditure equal to  $MN$  with deflationary results. In the opposite circumstances, a shift to the right of the demand curve, with the supply curve unchanged, will be inflationary.<sup>1</sup> It follows that if, for some reason, the rate of interest does not change,

or does not change in the right degree, when a change occurs in the propensity to save or the inducement to invest, fluctuations in activity will take place.<sup>2</sup> This proposition, as we shall see below, is the core of modern theories of the trade cycle, and it is therefore interesting to observe the clarity with which it was stated by Joplin, over a hundred years ago: "The natural rate of interest can never be known with our system of currency. It depends, as we have



stated, upon the quantity of income saved, proportioned to the demand for capital. But with the power possessed by our banks of cancelling money which has been saved, or manufacturing it when it has not, this supply and demand can never be ascertained. Consequently the banks have an arbitrary charge, some of four, but most of five per cent, from which they do not vary: but which being neither the natural war rate nor the peace rate, is as little likely to be the true rate as any other between these two extremes they could have pitched upon."<sup>3</sup> "But it may be easily perceived that if the banks were to regulate their issues by no other rate than the demand it had for money at 4 per cent., or any particular rate

<sup>1</sup> The amount  $MN$  measures only the *immediate* effect of the change. The *total* effect will depend upon the size of the multiplier and the secondary changes in investment. Cf. Ch. III, below.

<sup>2</sup> A clear analysis of the effects of a divergence between savings and investment is to be found in *Purchasing Power and Trade Depression*, by E. F. M. Durbin.

<sup>3</sup> *Ibid.*, p. 38.



of interest, then its issues would always be above or below what they ought to be. . . . *Prices would fluctuate instead of the rate of interest.*"<sup>1</sup>

It would, of course, be foolish to suggest that these ideas were ever developed by the classical school into a coherent theory of economic fluctuations. On the contrary, short passages of great insight are buried in long and sometimes tiresome discussions of current problems and the full significance of the new ideas was not appreciated. Nevertheless, the classical school was on the right lines and it is one of the major tragedies in the history of economic thought that economists subsequently neglected this path of investigation. The responsibility for this neglect must rest, in the main, with the otherwise more sophisticated successors of the classical school, but the classical economists themselves must bear a part of the blame, for they were guilty of a serious and misleading inconsistency in propounding, on the one hand, Say's Law and, on the other, the theory of a natural rate of interest, from which the current money rate might diverge. If they had merely claimed that the former would hold in a world where the banks operated with perfect efficiency, then their position would at least have been consistent, but it was their custom to apply Say's Law to the real world, where on their own confession the banks did not operate with this degree of foresight, and with it to confound Malthus and the Attwoods and other supporters of a high level of consumption. As the quotations from Joplin show very clearly, it followed from their theory of a possible divergence between saving and investment that there is underconsumption during the depression, but this they would not concede, and in reply to all proposals for monetary expansion they fell back, quite illogically, upon the Law of Markets.

This inconsistency was never removed from classical theory, and during the latter part of the century the problem dropped out of sight. Economists were interested in other problems and when the theory of savings was discussed it was the first of the classical doctrines, the Law of Markets, which was usually invoked. This Law was made all the more convincing by the development of the time-preference theory of the rate of interest. As we have seen, the neo-classical economists appeared to have an unanswerable reply to any critics of a high propensity to save.

In *Prices and Production*, Professor Hayek attributed to Wicksell the revival of Thornton's ideas, but, in a more recent essay,<sup>2</sup> he shows

<sup>1</sup> *Views on the Currency*, pp. 152-3 (the italics are mine); cf., also, *An Illustration of Mr. Joplin's Views* . . . , p. 4, para. 15.

<sup>2</sup> "A Note on the Development of the Doctrine of Forced Saving," *loc. cit.*

that Walras anticipated Wicksell by some twenty years<sup>1</sup> and Wicksell himself was influenced by this work. The researches of Professor Marget lead to the same conclusion.<sup>2</sup> It was Wicksell, however, who made the theory the centre of discussion. In *Geldzins und Güterpreise* and in his later writings, he examined in detail the possibility and the significance of a divergence between the natural rate and the current rate. He defines the natural rate as "the rate of interest at which the demand for loan capital and the supply of savings exactly agree, and which more or less corresponds to the expected yield on newly created capital. . . ."<sup>3</sup> When, however, we take account of "organized credit and especially the activity of the banks, the connection between loan interest and interest on capital will become much less simple; indeed it will then only exist at all by virtue of the connecting price movements, as we shall now see."<sup>4</sup> If the market rate is below the natural rate there will be an increase in monetary demand for the factors of production, which will lead to increased competition for labour and a rise in wage-rates.<sup>5</sup> The total demand for consumable goods will go up and this will stimulate still further the entrepreneurs' demand for credit. In this way a cumulative expansion will begin which will continue so long as the natural rate is above the market rate.

By his elaborate development of the theories of Thornton, Malthus, Ricardo, and Joplin, Wicksell was able to offer a convincing explanation of the cumulative movements which were so frequent an occurrence in the real world. Moreover, he met an objection to the earlier theories, which had been first raised by Tooke, namely, that periods of expansion and rising prices are also periods when the rate of discount is rising.<sup>6</sup> The rate of interest charged in the market is not the operative force in bringing about an expansion or a decline, "for it may be said that the banks never alter their interest rates unless they are forced to do so by the force of outside circumstances."<sup>7</sup> It is rather the natural rate which changes. "In other words, the difference between the actual loan and normal rates, which we have already designated as a major cause of fluctuations in commodity prices, arises less frequently because the loan rate changes spontaneously while

<sup>1</sup> In his *Théorie Matématique du Billet de Banque*, 1879.

<sup>2</sup> "Léon Walras and the 'Cash Balance Approach' to the Value of Money," *Journal of Political Economy*, vol. 39, p. 598, *et seq.*

<sup>3</sup> *Lectures on Political Economy*, vol. II, p. 194.

<sup>4</sup> *Ibid.*, p. 194.

<sup>5</sup> The case where there are unemployed resources is briefly discussed and dismissed as unimportant (p. 195).

<sup>6</sup> *Lectures on Political Economy*, p. 202.

<sup>7</sup> *Op. cit.*, p. 204.

the normal or real rate remains unchanged but on the contrary because the normal rate rises or falls while the loan rate remains unchanged or only tardily follows it."<sup>1</sup> He made one further innovation which was very important. The classical writers usually referred to the rate of discount; it was this which must be equated with its natural rate. Wicksell, however, felt that the long-term rate is more important in its effect on business although he recognized that banking policy may be the ultimate cause of instability.<sup>2</sup> The far-reaching significance of this change will be discussed in the next chapter.

Meanwhile it must be emphasized that, in fact, if not in intention, Wicksell's theory was a heavy attack on the neo-classical theory of saving. It showed that, as a result of the imperfections of the investment market, a fall in the rate of profit may not be followed by a fall in the rate of interest and only a part of the current volume of savings will then be invested. Income and prices will therefore fall and there will be a state of over-saving. These possibilities were, as we have seen, clearly implied in the early classical writings. The importance of Wicksell's work lay, not so much in the enunciation of new theories, as in the fact that his work pointed to inconsistencies between the two parts of the classical theory and it is now clear that, of the two, the Law of Markets is far less important in the real world.<sup>3</sup>

<sup>1</sup> *Lectures on Political Economy*, p. 205. The same idea is contained in the writings of Joplin and Ricardo.

<sup>2</sup> Cf., e.g. "In addition there is the difference between interest on short and interest on long dated loans, of which only the latter corresponds to the real rate." (*Ibid.*, p. 191.)

<sup>3</sup> This thesis is supported by two quotations from Professor Myrdal's *Monetary Equilibrium*. "If the price of a commodity rises we say that it results from the fact that demand has risen, or supply fallen, in which case equilibrium is only reached at a higher price. . . . If, now, all prices (the price level) rise it must be possible to explain the phenomenon in the same manner; it must be possible to say that the demand for all commodities rises or the supply falls. Wicksell quite appreciated how heretical this way of looking at the problem was from the standpoint of traditional equilibrium theory. For according to this theory, the supply of one commodity was at the same time the demand for all other commodities; a disturbed equilibrium between supply and demand for all commodities was not conceivable. Wicksell's heresy was, moreover, the very kernel of those theories of overproduction and under-consumption, the refutation of which the classical economists had considered to be their special duty. Wicksell, therefore, at once made the obscure reservation that the classical economists were 'fundamentally' correct. But, *prima facie*, it was, nevertheless, possible that supply and demand for all commodities could change their mutual relationship." (p. 21.) Yet these heretical ideas of Wicksell's were not original. In another passage Professor Myrdal writes: "The authors who to-day represent this new theoretical approach trace it to Knut Wicksell. Everyone acquainted with earlier economic literature knows, however, that the discussion of monetary problems in England and elsewhere a hundred years ago, stimulated by experiences similar to those of recent years, produced a group of theories which Wicksell finally worked up into a coherent monetary theory." (p. 6.) "Wicksell never claimed for himself great originality. On the contrary he took the greatest

Although it followed as a corollary from Wicksell's work that there is underconsumption during the down-swing of the trade cycle, most economists were reluctant to draw this conclusion. The theory was used to show that the boom is caused by a deficiency of savings, but the converse was not at once applied to the depression. Wicksell had said that "the demand for new capital in an upward swing of the trade cycle is frequently much too great to be satisfied by contemporaneous saving," but "on the other hand, in bad times this demand is practically nil, though saving does not entirely cease." But he contented himself with a reference to production for stocks as a parachute during the depression, and did not suggest that an increase in the propensity to consume would have beneficial effects.<sup>1</sup> To the bulk of economists it was indeed almost irreligious to suggest that an increase in extravagance may be sometimes beneficial; they recoiled from the sinful thought and denounced with stern fervour what they could not refute with hard logic.<sup>2</sup>

pains to begin with the older discussion, especially with Ricardo's theory of the connection between the amount of gold, the interest rate and the price level." (p. 6 n.) Professor Myrdal does not draw the obvious conclusion that the classical writers held two mutually inconsistent theories. Cf., also, Rosenstein-Rodan, *loc. cit.*, and Hicks, "A Suggestion for Simplifying the Theory of Money," *Economica*, February, 1935.

<sup>1</sup> Admittedly, in the nineteenth century the emphasis on the virtue of thrift and on the danger of inflation was largely justified on practical grounds even if there was some logical inconsistency. Monetary and fiscal techniques were too rudimentary to permit a compensatory employment policy when private demand fell off. The real tragedy is that this attitude persisted too long.

<sup>2</sup> This criticism does not, of course, apply to the members of the Austrian School whose defence of a high propensity to save during a depression was based not on faith alone but on a most sophisticated theory of investment. Cf. Chapter VI, below, for a discussion of the most recent statement of this theory.

## LIQUIDITY PREFERENCE AND SPECULATION

WICKSELL made an important innovation in his revival of classical theory. Although he confined his detailed analysis largely to the effects of banking policy he held that it is a divergence between the current long-term rate and the natural long-term rate which causes the cumulative movement. There is no need to discuss the rather obscure suggestion that the real natural rate refers to the long period, nor need it be emphasized that, with a large volume of medium-term borrowing, the distinction between long-term and short-term rates, although convenient for expository purposes, is far from precise. It is sufficient to note that a large amount of capital is raised by issuing securities and that the issue prices will have an obvious bearing on the problem of effective demand.

In the classical theories, as we have seen, the current rate and the natural rate tend to equality, and it is only as a result of mistaken banking policy that any difficulties are encountered. But if we are concerned with the price of securities the problem becomes more obscure. What is the connection between the long- and short-term markets? What forces other than productivity and thrift affect the level of security prices?

1. A solution to this new problem was offered by Keynes, in his *Treatise on Money*, in the famous parable of the banana growers, where he describes the dire consequences of a thrift campaign in what was formerly a pleasant Utopia. Consumers, inspired by the new religion, reduce their consumption and begin to purchase securities instead of goods. But this does not lead to the rise in the prices of securities required to restore equilibrium, for new savings will merely be used for the purchase of old securities thrown on to the market by the producers of consumable goods in order to meet their losses. "The savings of the consumers will be required, either directly or through the intermediary of the banking system, to make good the losses of the entrepreneurs."<sup>1</sup> As a result, savings will exceed investment, and income will fall, till the banana growers are faced with the alternatives of starving to death or expelling, bag and baggage, the Puritan apostles of thrift.

This argument, it will be noted, does not rest on an assumption about mistaken banking policy. For the first time, attention was

<sup>1</sup> *Op. cit.*, vol. I, p. 177.

concentrated on changes in stocks of securities as the major cause of fluctuations in income. As Mr. Durbin remarked in reviewing the new theory: "Large stocks of securities, just as much as large stocks of commodities, constitute a continuous and serious threat to monetary equilibrium, and the existence of stocks of securities is inevitable in a way that stocks of commodities are not."<sup>1</sup> This is the basis of much recent theory. The classical forces of productivity and thrift do not determine yields on securities and thus foster income stability, because frequent changes in stocks are taking place. If, for example, an increase in the demand for new securities is met by a mere reduction of stocks held elsewhere, there will be no fall in the rate of interest and no increase in investment, with disastrous deflationary consequences for the entire economy. These changes in stocks on the long-term market supplement the effect of a creation or cancellation of bank credit which was so important in the early classical dissertations.

This theory provoked a long controversy which I do not propose to review in detail, but an important contribution was made by Professor Robertson, who emphasized that "in all cases such fall in the price of final output as occurs is seen to be attributable to Hoarding by someone—either by the public, or the producers of consumers' goods, or the dealers in securities, or those who handle the proceeds of the new issues."<sup>2</sup> In Keynes's example, depression seemed to follow inevitably without any assumption of an increase in hoarding, but it is clear that unless, at some point, cash is absorbed, aggregate receipts of all producers will not decline. The argument will only hold if the increase in the propensity to save is accompanied by an equal increase somewhere in the propensity to hoard. Why should this condition be fulfilled? Keynes did not answer that question, and Professor Robertson remarked that "Where I suspect there is still work to be done is in clearing up the nature of the forces which let the spirit of hoarding loose."<sup>3</sup> That task was attempted several years later by Keynes himself in his *General Theory of Interest, Employment, and Money*.

2. In this work, Keynes made a more detailed study of the various motives which induce people to hold a part of their resources in a liquid form. He divides the motives for holding money into two main groups. In the first group, there are the income motive, the business motive, and the precautionary motive. These correspond

<sup>1</sup> *The Problem of Credit Policy*, p. 103.

<sup>2</sup> "Saving and Hoarding," *Economic Journal*, 1933, p. 406. Cf. the criticism of Mr. Lerner's argument in Ch. I above.

<sup>3</sup> "Mr. Keynes's Theory of Money," *Economic Journal*, 1931, p. 410.

to the classical theory of the demand for money; they are essentially independent of the rate of interest and depend upon the level of income. But in the second place, money may also be held for speculative purposes. "There is," wrote Keynes, "a necessary condition failing which the existence of a liquidity preference for money as a means of holding wealth could not exist. This necessary condition is the existence of uncertainty as to the future of the rate of interest."<sup>1</sup> Speculators have a certain notion of what constitutes a safe level for the rate of interest, and if the current rate lies much below this safe level they will prefer to hold liquid funds, rather than income-yielding securities. It is true that if time-preference were the only consideration, all funds which earn no rate of interest would be spent, but in discussing the real world this additional factor, liquidity preference, must be taken into account. Idle funds are not altogether barren. They yield a return in the form of security, and the rate of interest must, therefore, be regarded as a reward for parting with liquidity. On the basis of this reasoning, Keynes defined the rate of interest as a function of the supply of money and liquidity preference. "There is a continuous curve relating changes in the demand for money to satisfy the speculative motive and changes in the rate of interest as given by changes in the prices of bonds and debts of various maturities."<sup>2</sup> It can now be seen how a fall in the rate of interest can reduce the supply of investible funds, apart from any reduction in the total volume of savings, for such a fall may reduce the current rate below the anticipated rate and lenders will then be well advised to hold cash or short-term assets till the rate has risen once more to a "safe" level. They may need liquid funds in the future and if they buy investments now they will then be obliged to sell them at a capital loss; or the same loss will have to be faced if they should try to transfer their capital in the future to some other securities in order to secure a higher rate of interest. The holding of liquid funds will, it is true, involve a certain sacrifice—the sacrifice of the interest which could be earned on these funds between the present moment and the moment when the rate is expected to rise. But the lower the current rate the less this loss will be and thus a low rate has two effects: it suggests that a rise will occur in the future and at the same time it offers a small reward for running such a risk by holding long-term securities.

It is true that this account of the forces which determine the rate of interest is not altogether new. As early as 1931, Keynes had written: "... the price of non-liquid capital assets is a function of

<sup>1</sup> *General Theory*, p. 168.

<sup>2</sup> *Ibid.*, p. 197.

the quantity of inactive deposits in conjunction with the degree of the propensity to hoard."<sup>1</sup> The new work, nevertheless, marked an advance in several respects. The ideas of the *Treatise* and those which emerged in the subsequent controversy, were now brought together in a more coherent form; the basic importance of changes in stocks of securities was made clearer, and the argument was no longer confined to the activities of the producers of consumption goods.<sup>2</sup> But the really original contribution lay in the explanation he offered of liquidity preference itself, for it was at this point that the earlier version was most unsatisfactory. Speculators will absorb or unload securities, if they feel that the yield is diverging from what they have come to regard as a "normal" level. Their conception of the "normal" may not change much in the short period, and it will certainly not change in the right degree simply because a change had taken place in productivity or thrift. Changes in the classical factors may, therefore, have no effect at all on the price level of securities and violent fluctuations in income, or possibly even long period unemployment, will be a characteristic of the economic system. We have now an explanation of the forces which "let the spirit of hoarding loose."

3. Keynes has, however, been charged with circular reasoning. If the long-term rate exists simply because people speculate about future levels of that rate, how, it must be asked, did it ever come into being in order to serve as the basis for speculation? Surely it is left "hanging by its own boot-straps"! This problem has caused a great deal of confusion, but it is wholly spurious. It arises only because Keynes, in his anxiety to blast the classical foundations, has been understood to deny that productivity and thrift can ever affect the rate of interest at all. If, however, speculation were to cease, it would not follow, as Keynes's exposition seems to suggest, that the long-term rate would suddenly disappear. It would then be determined by productivity and thrift and the classical assumptions would be valid. In order to remove the apparent circularity from Keynes's theory, it is only necessary to make the modest concession—offensive as it may be to the Fundamentalists of the Keynesian school—that at some period in the history of the world productivity and thrift

<sup>1</sup> "A Rejoinder," *Economic Journal*, 1931, p. 413.

<sup>2</sup> Unfortunately the issue was clouded again by "a sham dispute," as Hicks has called it (*Value and Capital*, p. 153), between those who believe that the rate of interest is determined by the demand for loanable funds and their supply (e.g. D. H. Robertson) and those who contend, on the other hand, that it depends upon the demand for and supply of money (e.g. J. M. Keynes). Both contentions amount, of course, to the same thing.



have had some influence on security prices. These are the basic forces which bring the rate into existence, although it may be that in the modern world they no longer determine at what level it shall stand.

Although the existence of the long-term rate of interest can be explained without any circular reasoning, Keynes's theory is inadequate in another respect. He has rightly emphasized that speculators have some notion of what constitutes a normal rate of interest, but he has not explained how this notion was first evolved. It is therefore true that the *normal* rate is hanging by its own boot-straps and this is a very serious defect in his work, for the theory of speculation based on a normal rate is one of the most important contributions he has made. Empirical evidence reveals that the yield on government bonds is comparatively stable, and in a world where so many other factors are constantly changing it is not at all clear why this should be so. Moreover, the greater this stability the more reason there is for supposing that productivity and thrift do not affect the yield to any appreciable extent and the more wholly inapplicable the classical analysis. It is clear that some further study of the motives which guide the actions of speculators is needed and we shall therefore turn to the recent work of Professor Hicks<sup>1</sup> and Messrs. Kaldor<sup>2</sup> and Kalecki.<sup>3</sup>

These authors have found a solution to the problem by examining the consequences of the great mobility of funds, which they believe to exist, between the bond market and the short-term market. For an investor, who can hold his resources in either market, "it is clear that the stimulus to keep bonds is the margin between the present long-term rate and the anticipated average short-term rate over a long period."<sup>4</sup> The determination of the "safe" yield is thus explained. It may be described as a combination of one spot transaction for the minimum period for which loans are made with a series of forward transactions for future periods. Let  $R_n$  be the long-term rate for a length of time equal to  $n$  periods. Let  $r_1$  be the current short-term rate for the first period;  $r_2$  the forward short-term for the second period;  $r_3$  for the third, and so on. It follows that—

$$(1 + R_n) = (1 + r_1) (1 + r_2) (1 + r_3) \dots (1 + r_n)$$

This somewhat simplified formula indicates the relationship which ought to exist between the long-term rate and the short-term rate.<sup>5</sup>

<sup>1</sup> *Value and Capital*, Ch. XI.

<sup>2</sup> "Speculation and Economic Stability," *Review of Economic Studies*, October, 1939.

<sup>3</sup> *Economic Fluctuations*, Ch. 5.

<sup>4</sup> Kalecki, *op. cit.*, p. 112.

<sup>5</sup> Hicks, *op. cit.*, p. 145.

Since the yield is based on an average of short-term rates over a considerable length of time, it is not likely to fluctuate to any great extent in the short period. It will certainly not be affected in the right degree by changes in productivity and thrift, and saving and investment in the long-term market will therefore diverge. Of course it is not claimed that the yield will be made equal to expected short-term rates. It may stand above it for there are other disadvantages in holding illiquid assets. Clearly the outcome will depend partly upon the general state of confidence and partly upon the relative amounts of the different kinds of assets available in the market. As for the short-term rate itself, it is held that this refers to periods too short to provide scope for speculation. Nor, it is argued, will speculation in securities affect the cost of short-period borrowing except perhaps indirectly, by permitting a fluctuation in income and thus in the demand for working balances. Even this exception may not be so important, according to Mr. Kaldor, for the supply of short-term credit is usually more elastic than the demand for it, and its cost will therefore be determined mainly by those who control the supply, i.e. the banks.

4. Is it really possible to accept this very esoteric theory as an explanation of what happens in the real world? The theory, it must be remembered, is supposed to describe the motives by which speculators are guided, and not the action of some unseen forces which work mysteriously at the centre of things and determine the course of economic events. The great complexity of the works of these writers therefore tells against them, and it may, in any case, seem rather strange that this description of the capital markets should come from pure theorists in their study chairs. Why has no speculator ever confessed? These objections, however, do not hold. The core of the new theories is the mobility of funds between the security market and the short-term market, and this very simple explanation must not be allowed to acquire a spurious complexity from the context in which it is set. Moreover, it is certainly not a new theory—which is very fortunate if it is to be accepted.<sup>1</sup> It has always been recognized that funds will move from one market to the other if certain changes in yield or rate take place, and speculators balance the relative advantages of different kinds of assets. No one, I fancy, would deny that a certain amount of speculation does occur in the way which Professor Hicks and Messrs. Kaldor and Kalecki have described, and that this has some effect on the prices of securities. The only contentious point

<sup>1</sup> Cf., e.g., F. Lavington, "Long and Short Term Rates of Interest," *Economica*, 1923; J. A. Schumpeter, *Business Cycles*, p. 620 *et seq.*; W. M. Persons, "Money Rates, Bond Yields and Security Prices," *Review of Economic Statistics*, April, 1927.

is whether this is the dominating factor, or whether it should only be regarded as a minor influence, as compared, say, with productivity and thrift. The neo-Keynesians accept, of course, the former view, and their belief appears to have received some measure of confirmation from an empirical investigation carried out by Professor Hicks.

"What seems to happen," he writes, "is not, of course, that people think they can foresee the course of short-term rates very far into the future; but that prolonged experience of high or low rates gradually alters their ideas of what rates can be considered normal. This is the clue by which we can hope to get a statistical measure of the normal rate."<sup>1</sup> Expectations will clearly be affected by past experience and, if the theory is correct, there should therefore be a fairly close correlation between the yield on government bonds and averages of past short-term rates. Professor Hicks has tested this possibility. For each year from 1854 to 1938, he has calculated an average of deposit rates for the ten years which end in the year in question, and he has then compared these averages with the yield on Consols in each year, on the assumption that the alternatives before speculators are those of holding government bonds or holding money idle on deposit. He regards the correlation of the two curves as fairly satisfactory, if allowance is made for special conditions in the very early years, and if recent short-term rates are weighted more heavily in the post-war averages to allow for increased political insecurity.

It is true that this evidence is by no means conclusive. The correlation is not as good as might be hoped for; more account should be taken of other short-term rates, besides the deposit rate;<sup>2</sup> and, above all, since economic instability is a characteristic of the *laissez-faire* everywhere, an explanation of that instability should be tested for more countries than one. On the other hand it would be surprising if the correlation were perfect. First, it must be observed that past short-term rates will not wholly determine expected short-term rates, and the extent to which they do so will fluctuate to some extent. Secondly, it would be foolish to pretend that speculators are not influenced by other motives, besides the expected level of short-term rates. All kinds of random factors must be taken into account—political news, and so on. In short speculation is determined by general confidence

<sup>1</sup> "Mr. Hawtrey and the Long- and Short-term Rates of Interest," *Manchester School*, 1939, p. 27.

<sup>2</sup> Mr. Hawtrey has objected that there is more competition between bills and Consols than between deposits and Consols, and that the correlation between a weighted average of past bill rates and the yield on Consols is not so good. *Ibid.*, p. 150.

as well as expected short-term rates and the former is likely to vary quite considerably. With these qualifications, the new theory of speculation can be accepted.

A similar investigation has been carried out for the U.S.A. by Dr. C. E. Thomas.<sup>1</sup> He has shown that the main determinants of bond yield are (1) changes in the short-term rate, (2) changes in "Trade Volume," as shown by the general index of industrial production, (3) a secular factor. "It seems reasonable," he writes, "that fluctuations in 'Trade Volume' should be inversely related to 'Bond Yields,' since fluctuations in industrial production contribute in a major way to fluctuations in industrial net profits and since fluctuations in net profits are accompanied, in general, by fluctuations in the margin of safety of fixed charges."<sup>2</sup> We may, therefore, regard "Trade Volume" as a crude measure of "uncertainty," and it is a striking comment on the classical theory of productivity and thrift, that the yield should sometimes *decline* when productivity and the demand for investible funds are *increasing*, and *rise* when they are falling. Dr. Thomas concludes, from his statistical investigation of the years 1900-1934, that a decrease of 1 per cent in short-term rates would lower bond yield by 0.24 per cent and a decrease in general industrial activity of 12 per cent would raise bond yield by 0.24 per cent. (As a result of these two offsetting factors, the yield rose during the great depression of the 'thirties.) This account is obviously different in several respects from Professor Hicks's, but both agree on the fundamental fact that the yield is determined, not by productivity and thrift, but by the course of short-term rates and liquidity preference.

5. It will have been observed that Professor Hicks and Messrs. Kaldor and Kalecki are primarily concerned with the market for safe government bonds, and this appears a little surprising when it is recalled that the main object of the inquiry is to discover the consequences of a fluctuating demand by business for funds. Furthermore, the speculator appears to have changed his nature. Keynes had some highly coloured passages about speculators who try "to beat the gun" and it is difficult to recognize as such the canny arithmeticians of the more recent theories who are so interested in the relationship between government bond yields and expected short-term rates. Speculators in the ordinary sense, who buy with the idea of selling quickly and making a capital gain, must be comparatively indifferent to the prospective rates on deposits or bills for years ahead. Indeed

<sup>1</sup> "The Effect of the Depression upon Bond Yields," *Journal of American Statistical Association*, 1933, p. 261 *et seq.*

<sup>2</sup> *Ibid.*, p. 262.

the government bond market has been described as "non-speculative," and although it may be true that some people do make the arbitrage movements of funds described in the newer theories, they must not be confused with the more melodramatic speculators. They may be large private investors, insurance companies, etc., and it may be noted that the banks themselves, by correlating their rate policy with their open-market purchases and sales, will tend to strengthen the link between rates on assets of different maturities. Mr Kaldor has, it is true, devoted a short paragraph to industrials.<sup>1</sup> He points out that the yields on securities of various kinds will be differentiated by risk premiums and one can thus construct a pyramid beginning with safe government stock and reaching up to highly risky equities. But it is important to stress that these risk premiums tend to change, and it is just these changes which are an important cause of speculation. One of the cumulative effects of an expansion is usually a narrowing of the gaps between the yields on low- and high-grade securities. As confidence improves, more funds are invested in riskier bonds and in shares, and it must be observed that this movement of funds may not be due, in the main, to calculations about the expected level of short-term rates. Nor may the market for government bonds be much affected, for the main highway for speculative funds will lie between the money market and the industrials market. Indeed one might argue that the government bond market is primarily an "investors" market, that the yield on these bonds is mainly determined by such long period considerations as expected short-term rates, and that, for these very reasons, it is not the market on which one should concentrate attention in explaining the trade cycle. I do not wish to suggest that Mr. Kaldor overlooked these facts, but it may fairly be urged that his emphasis was misplaced. One must add, however, that the principal conclusion holds. There is no mechanism in the security markets which will automatically adjust the amount of money borrowed to the supply of savings at a given level of income. Changing risk premiums are important and must be stressed, but they are unlikely to change even in the right direction to ensure stability of total expenditure.

6. It may be well to pause at this point and take stock.<sup>2</sup> Suppose there is an increased demand for loanable funds unaccompanied by any change in thriftiness. The fundamental question is: How can the needed money be obtained? The answers may be summarized

<sup>1</sup> *Loc. cit.*

<sup>2</sup> Cf. my article entitled "A Reconsideration of the Theory of Effective Demand," *Economica*, Nov. 1947.

briefly without attempting to suggest which have been the more important in the past. (1) Business men may use their existing current accounts to finance a larger volume of transactions, or (2) they may transfer funds from deposit account to current account, thus increasing the amount of money. ("Money" is defined as the most liquid of assets but liquidity is a matter of degree. According to the usual convention current accounts are included but not deposit accounts.) (3) They may seek new advances from the banks. If the banks are opposed to any increase, they can refuse to give additional accommodation or stifle the new demands by raising their charges, thus making the appropriate rate of interest behave in an equilibrating manner. In fact, if their reserve position permits, they will probably allow a net increase, i.e. create money. (4) Business men may sell reserve holdings of bills or—in so far as this is appropriate—issue new bills. If the banks refuse to create new money, the discount rate will then tend to rise, except in so far as the rise may be checked to some extent by the purchase of bills by holders of more or less idle balances who are attracted by the high rates. Once again, however, the banks will probably react by increasing their own holdings of bills and by lending money to third parties who wish to hold them. Thus newly created money will find its way into business men's current accounts *via* the discount market. (5) Lastly, the funds may be sought on the securities market. This is the case which has received most attention in recent theory and which appears to be most difficult. In fact it is very similar to (4) above. Thus a tendency for yields to rise may induce holders of idle deposits to buy less liquid assets, and in this way to provide business with additional current accounts. Alternatively, "speculators" may sell bills or borrow from the banks in order to buy securities. But if the banks refuse to expand credit, this action will tend to raise short-term rates. In so far as conditions are easier in the securities market, they will be more difficult in the money market.<sup>1</sup> Once more, however, the readiness of the banks to increase total deposits and thus create money may prevent this from happening. Directly or indirectly, they may provide the wherewithal for speculation.

In short, total monetary outlay may be increased by an increase in the velocity of circulation of existing current accounts, by transfers from deposit to current account, or by the creation of new deposits. Of course it is desirable to go beyond this, for the procedure is complicated in practice and there are various intermediate exchanges of assets and money. But the whole process can be regarded, in the end,

<sup>1</sup> Cf. Tsiang, "Speculation and Income Stability," *Economica*, 1943.

as an increase in  $M$  and  $V$ , to resort to old-fashioned language, and much confusion might have been avoided if the Keynesians had condescended to express their views in more familiar terms. It must not be supposed, of course, that they have merely wrapped up old truths in new and bewildering language. What they have tried to do is to suggest *why* the devils of hoarding and dishoarding are let loose. Their predecessors had observed that security prices might be prevented from falling if some people decided to reduce their cash balances and buy securities: the Keynesians have tried to show why speculators may in fact be expected to behave in this way during an expansion. Admittedly their account is incomplete and a vast amount of empirical research is needed before we shall be able to give a detailed and accurate account of what happens. But the trail has at least been blazed.

Finally, it must be observed that if times are very bad there may be no rate of interest capable of bringing savings and investment into alignment at the current level of income. Even at a zero rate of interest there might still be a substantial volume of savings, i.e. the  $SS$  curve in our previous diagrams might cut the  $x$ -axis to the right of the origin. On the other hand, investment opportunities might appear so unattractive and the risks of borrowing, apart from any interest charges, so forbidding that investment demand would not absorb this volume of savings at even a zero interest rate. In such circumstances equilibrium could only be restored by a further fall in income which would shift the  $SS$  curve to the left till it cut a  $DD$  curve. Of course, the rate has always been positive, if only because of the risk of default. But it has been very low and has still proved inadequate, so that the "natural" or "stability" rate—if there was any such—must have been very close to zero. In fact there may have been no such "stability" rate at all, i.e. there may have been no point at which the  $SS$  and  $DD$  curves intersected. In such circumstances the most heroic credit policy could not have prevented a decline in income.

### CHAPTER III

## THE THEORY OF THE MULTIPLIER

IF the rate of interest is not determined by productivity and thrift, then, as we have seen, any change in the propensity to consume or the inducement to invest will be followed by a fluctuation in the level of income. In the present chapter we shall assume at the outset that there is this basic instability in the economy and we shall then inquire how great the fluctuations in income are likely to be and what forces will determine their magnitude. In doing so, it will be convenient to begin with a brief reference to the long controversy about the advisability of public works during a depression, for it was from this discussion that the solution of the wider problem ultimately emerged.

1. For generations "monetary cranks" have argued that the depression is due to insufficient spending and that it will be wise policy to supplement private investment by public expenditure during this period. More money will thus come into the hands of consumers, demand will increase, and, when stocks have been reduced to a minimum, production will begin to grow. Ideas of this kind are not new, but they were never accepted by the classical or neo-classical schools. Even in the twentieth century, public expenditure as a remedy for unemployment has been regarded with suspicion until recent years. The Austrians, basing their argument on their peculiar theory of capital accumulation, denounced it.<sup>1</sup> Professor Pigou pointed out that, since labour is partly specific in the short run, public spending would only reduce unemployment in those industries which carry out government contracts.<sup>2</sup> Mr. Hawtrey said that the government could only finance its schemes by drawing money away from other forms of investment.<sup>3</sup> Professor Robertson rejected Mr. Hawtrey's argument, but he raised the difficulty that "all such proposals for increasing the volume of consumption during depression are, like a steady price level and the more equal distribution of wealth, open to the objection that they check that accumulation of consumable goods on which industrial progress depends."<sup>4</sup> Few of these writers would

<sup>1</sup> Hayek, *Prices and Production*, p. 86 *et seq.*

<sup>2</sup> *Industrial Fluctuations*, p. 308 *et seq.*

<sup>3</sup> *Good and Bad Trade*, p. 260.

<sup>4</sup> *Industrial Fluctuations*, p. 253.



express the same opinions to-day,<sup>1</sup> for the Wicksellian theory and the views expressed by Keynes and Robertson, have come to be generally accepted, and to this has been added a new refinement—the theory of the multiplier.

In an article published in 1931,<sup>2</sup> Mr. Kahn studied the effect on total employment of an increase in public expenditure, and suggested a formula by which it could be measured. Mr. Hawtrey's argument above is put aside<sup>3</sup> for it is assumed by Mr. Kahn that the public works are financed without any rise in the rate of interest. Private investment will therefore remain at its former level and total investment will be increased and will now be greater than savings. Only a part of the consequent rise in income is likely to be saved and the expenditure of the residue on consumable goods will raise profits and encourage entrepreneurs to increase their production. As income increases savings will also increase and, finally, when the new savings are equal to the new investment, abnormal profits will disappear and the expansion will come to an end.

There are two conclusions from this analysis. In the first place, it is clear that the total increase in employment due to government spending will not be confined to those trades which receive the government orders. The limitation to the possible increase in employment is therefore not so narrow as Professor Pigou at one time supposed.<sup>4</sup> In the second place the magnitude of the secondary increase in employment will depend upon the marginal propensity to consume. Let the latter be represented by  $k$  and the increase in government spending by  $I$ . Then the total increase in employment will be equal to—

$$I + kI + k^2I + k^3I \dots = I \left( \frac{1}{1-k} \right) = I \left( \frac{1}{1-\frac{dC}{dY}} \right)$$

where  $C$  stands for consumption and  $Y$  for income.

Mr. Kahn has called this expression,  $\left( \frac{1}{1-k} \right)$ , the multiplier. In his theory it measured the amount by which the increase in employment in the investment goods industries must be multiplied to give

<sup>1</sup> Cf. Hawtrey, *Capital and Employment*, p. 125: "... in an extreme case there may be a temporary glut (of capital), so that there is not merely a tardy response to capital outlay but apparently for the time being no response at all. It is under such conditions that Government expenditure offers a way of escape.

<sup>2</sup> "The Relation of Home Investment to Employment," *Economic Journal*, June, 1931.

<sup>3</sup> It has been implicitly refuted in Chapters 1 and 2 above.

<sup>4</sup> When it is also recalled that government assistance need not be confined to public works, but may take other forms as well, such as reduced taxation or consumers' credits, the objection loses still more of its force.

the total increase in employment. Keynes substituted for it the real income multiplier which shows the relationship between a primary increase in investment, measured in wage-units, and the total increase in income, also measured in wage-units.<sup>1</sup> Both the employment multiplier and the real income multiplier, however, are open to a similar defect. The former pre-supposes that there are reserves of unemployed labour in the investment goods industries, and this has led Mrs. Robinson into a curious fallacy: "Suppose that the Multiplier is equal to 2, that is, one man is put into work in consumption goods industries for every man put to work in investment, that 3,000,000 men are unemployed and that the number who are available for work in the investment goods industries is 1,000,000. Then, however perfect the control of the authorities over the rate of investment, unemployment cannot be reduced below 1,000,000 men."<sup>2</sup> The real income multiplier is based on a similar assumption, namely that supply is elastic in the investment goods industries. Mrs. Robinson's fallacious argument may then be repeated by substituting "real output" for "employment." The argument is fallacious, because, in estimating the possibilities of government spending, or for that matter, the effects of any increase in investment, what matters is not the employment multiplier or the real income multiplier, but rather, as Mr. Colin Clark has emphasized, the money income multiplier.<sup>3</sup> If expenditure on investment is greater than savings, there will be a stimulus to expansion and this expenditure can be increased by bidding up costs, even if there is full employment and inelasticity of output in the investment trades.

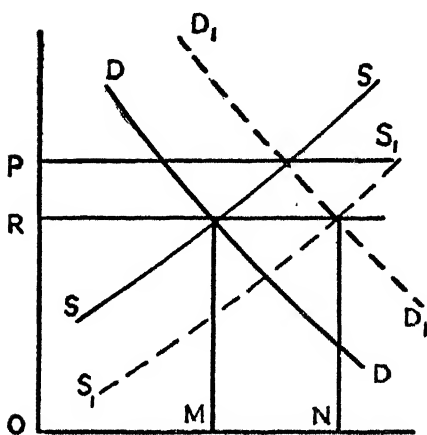
Let us resort once more to the curves already employed in the first two chapters. Suppose that, as a result of, say, a new invention, the marginal efficiency of capital is increased and the  $DD$  curve moves to the right, to the position  $D_1D_1$ . Given the classical assumptions, this would lead to a rise in the rate of interest from  $OR$  to  $OP$ . If, however, the supply of credit is elastic to the extent necessary to stabilize interest rates, investment will increase from  $OM$  to  $ON$  without any corresponding increase in savings, and effective demand will have risen by an amount equal to  $MN$ . The theory of the multiplier shows that this rise in income will not be indefinite so long as it is accompanied by some increase in the supply of savings. It will finally come to an end when the  $SS$  curve has moved to the right, due

<sup>1</sup> *General Theory*, p. 113 *et seq.*

<sup>2</sup> *Essays in the Theory of Employment*, p. 46.

<sup>3</sup> "Determination of the Multiplier from the National Income Statistics," *Economic Journal*, September, 1938, p. 437.

to the increase in income, by the same amount as the  $DD$  curve; i.e. when savings have increased by  $MN$ . Even if the marginal propensity to consume is zero, income must increase by an amount equal to  $MN$ . If, however, it is positive, income must rise by an amount greater than  $MN$ , and if it is equal to unity the amount will be infinite. The actual size of the increase will depend upon the magnitude between



zero and unity of the marginal propensity to consume. In the opposite circumstances, a fall in investment will cause a fall in income till savings are reduced to the new level of investment.

2. The argument so far has proceeded on two simplifying assumptions. First, only a single change in investment has been considered, whereas, in actual fact, the upward or downward movement of income may induce entrepreneurs to make further changes in

investment, which will set up still wider fluctuations in income, and so on. Secondly, it was assumed that the marginal propensity to consume is constant, but it may be that this quantity will also fluctuate with fluctuations in income or profits. During an expansion, for example, people may be prepared to save more of their marginal incomes because they are better off, while during a contraction they will save less. It follows that the amplitude of the fluctuations in income will be increased by secondary changes in investment and decreased by changes in the marginal propensity to consume, but since, in the real world, very wide fluctuations in income do occur, we must conclude that, as a rule, the former more than offsets the latter. It is true that a stage must be reached when the relative strength of the two forces is reversed, for no cumulative movement is infinite, but a discussion of the turning points will be postponed to later chapters. At the moment, we are rather concerned with the nature of the cumulative movement itself and we shall now turn to the discussion of the optimum magnitude of an expansion.

This optimum is determined by the volume of unemployed resources. Thomas Attwood, who was regarded as a crude inflationist, was

aware that nothing can be gained by increasing the supply of money when full employment has been reached. "Whenever," he writes, "the money of a country is sufficient to call every labourer into action, upon the system and trade best suited to his habits and powers, the benefits of an increased circulation can go no further."<sup>1</sup> Keynes put forward a similar idea in his *General Theory*: "When full employment has been reached, any attempt to increase employment still further will set up a tendency for money prices to rise without limit, irrespective of the average propensity to consume; i.e. we shall have reached a state of true inflation. Up to this point, however, rising prices will be associated with rising real income."<sup>2</sup> An important contribution of the Austrian School has been a careful examination of the effect of an increase in expenditure after this situation has been reached.<sup>3</sup> It has been shown that there will be a scarcity of consumers' goods and that prices and wages will rise in an inflationary circle. A more or less violent readjustment will be necessary to bring this unstable situation to an end; a crisis will ensue and a general collapse.

The Austrian School has argued that this position of over-expansion is usually reached during the upper phase of the trade cycle and they have concluded that steps should be taken during the boom to encourage an increase in the propensity to save. But there are no logical reasons for supposing that the optimum must be surpassed. It is the task of empirical study to decide whether, in given historical cases, the boom had become inflationary or whether, on the other hand, the collapse occurred before full employment had been reached.<sup>4</sup> In this respect—though not in other respects—the dispute between the under-saving and the over-saving schools has been due almost entirely to different factual assumptions and much time has been wasted on useless discussions which might well have been devoted to a study of historical events.

The history of the past seventeen years has afforded a good example

<sup>1</sup> *A Letter on the Creation of Money*, p. 68. (Cf. Viner, p. 213.)

<sup>2</sup> P. 118.

<sup>3</sup> Cf., e.g. Mises, *The Theory of Money and Capital*; Hayek, *Prices and Production*.

<sup>4</sup> As a result of immobile labour, "full employment" is not a clearly demarcated line. The term can, however, be used to define roughly the position where there is an irreducible minimum of unemployment—irreducible, that is to say, in the short period, without an enormous rise in wage-rates. It is true that the mobility of labour is not a given factor; it is partly determined by the level of effective demand. A situation may, however, be reached when large increases in prices and wages have only a small effect on employment and in this way the optimum may be roughly determined. For an interesting discussion of the difficulties involved in the use of the term "full employment," cf. Joan Robinson, *Essays in the Theory of Employment*, Chs. 2 and 4.

of a transition from a period of underconsumption to a period of under-saving. Between 1930 and 1939 an increase in consumers' outlay would have caused an increase in total income in the non-totalitarian economies. This was the age of "want in the midst of plenty," when the monetary pranks, in spite of the logical defects of their reasoning, could claim with justice that a rise in total purchasing power brought about by means of consumers' credits would have had a beneficial effect and would not have resulted, as the orthodox economists seemed to believe, in a mere rise in prices. With the outbreak of the war, however, the age of scarcity returned and the under-saving school, whose teachings were so irrelevant during the slump, once more came into its own. Unemployed resources were soon absorbed to such an extent in this country that it was impossible to increase output merely by an increase in government expenditure or consumers' outlay. Increased purchases of armaments had to be accompanied by a decline in other forms of gross investment to the minimum required to enable the war-time economy to function, and by a decline in consumption which was brought about by voluntary savings, by heavier taxes, and by inflation which fell unfairly on different sections of the community. In the 'thirties it was not a question of choosing between "guns and butter"; we could have had lots more of both. In war time the choice was a real one and could not be evaded by any kind of "monetary device." Hence the problem of war finance, which still persists in the post-war period.

## CHAPTER IV

### SAVINGS AND INVESTMENT

So far our use of the terms "savings" and "investment" has been vague. It is only, indeed, in the literature of the past fifteen years or so that any attempt has been made to state precisely what these concepts mean. When the problem began to be studied, fresh difficulties were raised and a long and stormy controversy ensued which has only recently come to an end. Moreover, the notion of a natural rate of interest and the theories of forced saving were found to conceal many ambiguities which seem to have passed unnoticed by those who first employed the terms.<sup>1</sup> These developments will be briefly reviewed in the present chapter.

1. In his *Banking Policy and the Price Level*, Professor Robertson studied in detail, with the aid of a period analysis, the meaning of fluctuations in savings and investment. This method of approach, as subsequently restated,<sup>2</sup> is still a useful supplement to more recent contributions. He assumes that income earned on Day I cannot be disposed of till Day II. Part of this income will be saved on Day II and this must be compared with investment on Day II. If investment on that Day is greater than savings out of income earned on Day I, incomes available for expenditure on Day III will be inflated. Let  $Y$  represent income,  $C$  consumption,  $S$  savings, and  $I$  investment. Suppose the initial situation is as follows<sup>3</sup>—

$$\begin{array}{cc} \text{Day I} \\ Y = x & S = b \\ C = a & I = b \end{array}$$

Let investment increase by  $\Delta b$  units on Day II, but let savings remain unchanged. The situations on Day II and Day III are then as follows—

$$\begin{array}{cc} \text{Day II} & \text{Day III} \\ Y = x & Y = x + \Delta b \\ C = a & C = a \\ S = b & S = b + \Delta b \\ I = b + \Delta b & I = b + \Delta b \end{array}$$

<sup>1</sup> Cf. Keynes, *General Theory*, p. 79 *et seq.*, and p. 242 *et seq.*

<sup>2</sup> "Saving and Hoarding," *Economic Journal*, 1933.

<sup>3</sup> Cf. W. Fellner, "Saving, Investment and the Problem of Neutral Money," *Review of Economic Statistics*, November, 1938.

There is, of course, no reason to suppose that, if income increases by the same amount as investment, savings will also increase by the same amount. This will only happen if the marginal propensity to consume is zero, and by giving it other values Professor Robertson's model can be used to illustrate the theory of the multiplier. Suppose, for example, that the propensity to consume is 0.5. On Day III income will have risen to  $x + \Delta b$  but investment will still exceed savings, in this case by  $\frac{1}{2}\Delta b$ . A further rise in income will therefore take place in the next period and so on, till a final stage is reached when income will have increased, not by  $\Delta b$ , but by  $2\Delta b$  units, and savings are at last equal to investment. Professor Robertson's technique can thus be easily adapted to express a more recent theory which is now quite fundamental to economic dynamics, although in his earlier writings he did not, so far as I am aware, make any reference to the marginal propensity to consume as a factor which will determine the ultimate magnitude of the expansion.

2. In this respect his technique is superior to that used by Keynes in the *Treatise on Money*. Income is there defined so as to include only the "normal profits," which will just induce entrepreneurs to maintain the existing level of output. If the rate of interest is not at its "natural" level, savings and investment will diverge and abnormal profits, positive or negative, will appear, which will cause a fluctuation in income. This method of analysis is clearly less useful than Professor Robertson's. The abnormal profits or losses fall out of the picture and do not appear subsequently as income. The curious conclusion seems to emerge that if income once diverges from its "normal" level,<sup>1</sup> there can be no stability till it returns to that level, for profits, positive or negative, can never be a source of savings, positive or negative, and savings and investment will thus remain unequal till something is done to bring the natural rate and the money rate into harmony once more. If these ideas are applied to the period model of Professor Robertson, the situation on Day III differs from that shown by the latter's own theory—

$$\begin{array}{rcl} & \text{Day III} & \\ Y = x & S = b & \\ C = a & I = b + \Delta b & \end{array}$$

Investments and savings are still unequal and there is no place for the theory of the multiplier.

<sup>1</sup> Keynes, it is true, did not talk about a normal level of income and it would be easy to find passages in the *Treatise* which are inconsistent with a concept of this kind. But the notion is clearly implied in his reasoning.

3. In the *General Theory*, Keynes abandoned his earlier definitions. One of his most important contributions is his emphasis on income as a major variable in determining the volume of savings. There is, of course, nothing new in the idea itself. The most orthodox of the earlier economists would not have rejected it.<sup>1</sup> But Keynes's innovation lay in the use he made of it in developing the theory of the multiplier. "The traditional analysis has been aware that saving depends on income, but it has overlooked the fact that income depends on investment, in such a fashion that, when investment changes, income must necessarily change in just that degree which is necessary to make the change in saving equal to the change in investment."<sup>2</sup> The whole notion of a natural rate of interest is now completely upset for "there is, on this definition, a different natural rate of interest for every hypothetical level of employment."<sup>3</sup> The ambiguity of the term "natural rate of interest" in earlier writings has already been referred to.<sup>4</sup> Very often it seems to have meant that natural rate which, at the current level of income, would have equated savings and investment and thus prevented any change in prices. If, however, the current situation was, for some reason, regarded as abnormal, the current natural rate, i.e. the rate which would stabilize the current level of income, would not have been looked upon by Thorntorn Joplin, Ricardo, or Wicksell as *the* natural rate. This is all very confusing, and, after a vigorous criticism of the whole terminology, Keynes concludes<sup>5</sup> that if there is any rate which deserves to be regarded as *the* natural rate, in the sense that it is in some way unique, it is the natural rate which ensures full employment. But the word "natural" is unfortunate, since it suggests that there are forces at work which will ultimately bring the current rate into equality with this rate. There are no such forces and the actual rate may diverge from the "natural" rate for decades. Keynes therefore preferred the term "optimum rate," which also corresponds more obviously with the idea of an optimum propensity to consume.

The theory of forced savings is open to similar criticism,<sup>6</sup> if it implies that there is some "natural" level of savings, but if it merely means that investment carried out during an expansion, when prices are rising, will be partly at the expense of the recipients of fixed

<sup>1</sup> Cf. Irving Fisher, *The Rate of Interest*, and Hayek, "Saving," in *Profits, Interest and Investment*, Ch. 5.

<sup>2</sup> P. 184.

<sup>3</sup> *Ibid.*, p. 242.

<sup>4</sup> Above, Ch. 1

<sup>5</sup> P. 242.

<sup>6</sup> P. 80.



incomes, it may still be used. Since this was, in fact, what most people had in mind when they talked about forced savings and since they would, in many cases, have been surprised to learn that their theories were based on some notion of a normal level of savings, the recent Keynesian attack on the theory has been somewhat exaggerated. The nature of the attack is, however, less surprising when we consider that it is typical of the Keynesian neglect of the time-lag which must elapse before a change in incomes can make savings and investment once more equal, and the importance of the older theory has been in some measure ignored.

4. The concepts of savings and investment which Keynes employed in the *General Theory* are ambiguous. In Chapter 6 he shows that savings and investment must necessarily be equal:

$$\begin{aligned}\text{"Income} &= \text{value of output} = \text{consumption} + \text{investment.} \\ \text{Savings} &= \text{income} - \text{consumption.} \\ \text{Therefore saving} &= \text{investment.}"^1\end{aligned}$$

This equality follows simply from his definitions. It is very different from the other proposition that savings and investment are brought into equality by fluctuations in the level of incomes. It is quite inconsistent with the following passage: "The novelty in my treatment of saving and investment consists, not in my maintaining their necessary aggregate equality, but in the proposition that it is not the rate of interest, but the level of income which (in conjunction with certain other factors) ensures their equality."<sup>2</sup> If savings and investment are always equal by definition, why should a change in income ever occur?

The difficulty has now been cleared up, largely as a result of Scandinavian contributions. As early as 1930, Professor Myrdal had begun to distinguish between savings and investment, *ex ante facto*, and savings and investment, *ex post facto*. It is the latter sense which Keynes had in mind when he showed that savings and investment are always equal. But, as Professor Ohlin has remarked, "the income which has causal significance is not this *ex post* concept, the realized income during the period, but the expected income."<sup>3</sup> Professor Ohlin might have added that it is the latter which is relevant for Keynes's own theory of the multiplier. Entrepreneurs make certain

<sup>1</sup> P. 63. Cf. Lerner, *Mr. Keynes's General Theory of Employment, Interest, and Money*, and "Saving Equals Investment," *Quarterly Journal of Economics*, 1938, p. 297.

<sup>2</sup> "Alternative Theories of the Rate of Interest," *Economic Journal*, June, 1937, p. 249.

<sup>3</sup> "Some Notes on the Stockholm Theory of Savings and Investment," *Economic Journal*, 1937, p. 62.

investment plans; income receivers make similar plans about savings. If planned savings and planned investment are not equal, a change in the level of income will take place. Looking back over a period, however, the amount actually saved must be equal to the amount invested. If, for example, planned savings are less than planned investment, stocks of consumers' goods will be depleted and net investment will thus be reduced, and, at the same time, windfall profits will have been made by the consumption goods producers, which they will not have had time to spend, so that savings will also have been increased. *Ex post facto*, savings and investment must be equal, because sales and purchases must be equal. The equilibrium thus achieved corresponds to Marshall's market equilibrium; it is not necessarily a stable equilibrium, any more than the corresponding position need necessarily imply stable equilibrium in a commodity market, unless demand and supply are also equal. The buyers and sellers may not be satisfied with what has taken place. Their plans may have been upset and things may have turned out worse or better than they expected. They will then change their plans for the next period and so a cumulative movement will begin.

The meaning of the *ex ante* concepts, however, is still rather obscure. What is the significance of the equality of psychic plans in the minds of savers and investors? "How can future savings constitute a supply of credit and affect the bond market, before they are actually made?"<sup>1</sup> But planned savings and planned investment do not refer to the future. They refer to current activity, and the word "planned" is a misleading substitute for "*ex ante*." If the "plans" are not consistent, the attempt to carry them out will prove impossible. Windfall profits or losses will be made, which do not become disposable income at once; and unexpected changes in stocks will take place which cannot be remedied for some time. Dr. Lutz<sup>2</sup> and Professor Haberler have therefore concluded that "the most reasonable interpretation of Professor Ohlin's concept of *ex ante* saving is saving from disposable income,"<sup>3</sup> and this interpretation certainly helps to clarify the matter. I feel, however, that the confusion is almost entirely due to the unfortunate use of "planned" as a rendering of "*ex ante*," for "planned" suggests some psychic activity which cannot in itself influence the course of events. The proper translation is "attempted," which makes quite clear the meaning of "*ex ante*."

5. All the theories of saving and investment so far discussed have

<sup>1</sup> Haberler, *Prosperity and Depression* (revised edition), p. 189.

<sup>2</sup> "Saving and Investment," *Quarterly Journal of Economics*, August, 1938.

<sup>3</sup> Haberler, *op. cit.*, p. 189.

been based on some concept of normal profits. If incomes earned in the making of producers' goods are just equal to *ex ante* savings, there will be normal profits in the consumption goods industries and throughout industry as a whole.<sup>1</sup> This is a clear enough definition of normal profits, but, when it is argued that any divergence of profits from their normal level will cause a fluctuation in output, a new assumption is introduced about the nature of expectations. Entrepreneurs will only behave in this way if their elasticity of sales expectations is greater than zero.<sup>2</sup> If it is zero, no immediate change in output will take place, for the change in receipts will be regarded as purely temporary. The assumption that elasticity will be greater than zero is, of course, quite realistic over a large range of variations in output and prices. If abnormal profits are not followed by some increase in output, because entrepreneurs are not certain that their good fortune will continue, these doubts will soon be dispelled, for, so long as investment is greater than savings, these abnormal profits will, in fact, continue; marginal costs will be less than marginal productivities, and aggregate profits will not be maximized. After an initial hesitation, therefore, they will begin to expand and thus, although there may be certain delays in adjustment, the system will work in the way described above.

When, however, we consider a very wide range of prices or receipts, the assumption may cease to be realistic and may prove to be misleading. If prices or receipts have risen very high or fallen very low, the elasticity of expectations may be zero, or even negative. If, for instance, prices have been rising steeply for some time, business men may begin to fear that the rise cannot go much further and that a sharp fall is certain in the near future. They may then decide to cut down their scale of production, although savings are still less than investment. This conclusion has an important bearing on the theory of inflation. Historical inflations have usually been sustained by a large government deficit, financed by the creation of new money; but, in the absence of an "external" stimulus of this kind, an inflation probably cannot go on to great heights. It is true that the purely internal forces can carry the system upwards to the early stages of a hyper-inflation, but, finally, it may be checked by two factors: namely, acute labour scarcity and changing expectations. The former will be discussed below, but, at the moment, we are solely concerned with

<sup>1</sup> There will thus be a level of profits which is regarded as normal at every level of income.

<sup>2</sup> Cf. Hicks, *Value and Capital*, Ch. XVI, for a definition of this term: "I define the elasticity of a particular person's expectations of the price of commodity *X* as the ratio of the proportional rise in the expected future prices of *X* to the proportional rise in its current price."

the second factor. There is every reason to suppose that this second factor may be extremely important, for, after a time, the elasticity of expectations is likely to become negative and this, in itself, may bring an inflation to an end. Conversely, during a depression, the elasticity of sales expectations may again become negative, if the decline has proceeded beyond a certain limit, and although in this case savings are still greater than investment business men may enlarge their output and thus help to bring about the recovery which they have anticipated. It would, of course, be impossible to build up a complete theory of fluctuations on the basis of changes in the elasticity of expectations which would not involve circular reasoning, but, when the cycle has been otherwise explained, the fact that business men have some concept of a normal range of prices must be allowed for. The theories which assert that a divergence between savings and investment will lead to a cumulative movement, which will continue till the two quantities are once more equal, must be modified, for changes in the elasticity of expectations will restrict the fluctuations in either direction and prevent them from exceeding a certain intermediate range of prices and receipts, which may certainly be very considerable but which is always finite.

6. In the preceding chapters we have studied the causes of cumulative fluctuations in income. It has been shown that when equilibrium is disturbed by some change in productivity or thrift, stability will not be restored by appropriate changes in the rate of interest, for speculators have some notion of what constitutes a normal rate and they will not allow the current rate to depart very materially from this level. It follows that equality between savings and investment can only be restored by fluctuations in income. A fluctuation in income will, however, cause a still further increase or decrease in investment and still wider fluctuations in income will then take place, which will in turn cause further changes in investment and so on. In this way the cumulative movement will perpetuate itself, but it will not last for ever, for its magnitude will depend upon the following factors: first, the amount of the first change in investment and the amount of secondary changes induced by the change in income; second, the marginal propensity to consume and changes in it; third, the amount of unemployed resources—a limit which applies during an upswing only; fourth, the elasticity of expectations.

We have seen that the economic system is an unstable mechanism and that income will fluctuate if certain initial disturbances occur. But the source of the disturbances themselves has still to be discovered. Are they to be regarded by the economist as Acts of God which he

cannot, *quâd* economist, explain? Or is it possible, on the other hand, that the cumulative movement will itself engender forces which will not merely bring it to an end, but which will actually reverse its direction? Why should depression follow prosperity and prosperity follow depression with cyclical inevitability? Why does the economy never come to rest for any length of time? A discussion of these and kindred problems will occupy the remainder of the theoretical section.

## CHAPTER V

### CONSUMPTION AND INVESTMENT—I

THE relation between consumption and the demand for investment goods has been the subject of a long dispute. On the whole, the neo-classical and Austrian schools treated the two as independent. They would never, of course, have denied that the ultimate purpose of investment is consumption—Say himself does not dispute this truism<sup>1</sup>—but they did believe that a fall in the propensity to consume could be followed by an increased inducement to invest. “I begin,” writes Professor Hayek, “with the supposition that consumers decide to save and invest a larger proportion of their income. The immediate effect of the increase in demand for producers’ goods and the decrease in demand for consumers’ goods will be that there will be a relative rise in the prices of the former and a relative fall in the prices of the latter.”<sup>2</sup> To fervent underconsumptionists, passages such as this seem to reveal the utter absurdity of orthodox obscurantism. They have pointed out, again and again, that if fewer consumption goods are produced, less equipment will be needed and investment, far from increasing, will actually decline. Virtuous thrift will not increase the capital resources of the community but will prove rather to be a “public vice,” which brings with it unsold stocks, idle plants and idle men. In their eyes the creed of saving is not merely “the rational pursuit of an irrational end,” as Weber called it; it is irrational altogether.

There are two distinct issues involved in this controversy, which are rarely distinguished. First, there is the belief that an increased propensity to save must be deflationary; second, there is the proposition that it cannot lead to an increase in investment. The two are often regarded as synonymous, but that is a fallacy. If the rate of interest is solely determined by productivity and thrift, an increased propensity to save cannot have a deflationary effect. This does not mean, however, that investment will increase. As we have seen in Chapter I, equilibrium will be restored in the very short period by such a fall in the rate of interest that the supply of savings, in spite of the increased propensity to save, will decline to its previous level.<sup>3</sup>

<sup>1</sup> Above, Ch. I.      <sup>2</sup> *Prices and Production*, p. 70.

<sup>3</sup> This reasoning implies, of course, that the supply schedule of savings and the demand schedule for loans cut at some positive rate of interest. Cf. p. 26 above.

After a time-lag it is possible that the low rate of interest will call forth an increase in investment but, whether this occurs or not, there will be no fall in effective demand and no unemployment. Thus, even in a pleasant Utopia where Say's Law held the problem of the connection between consumers' outlay and the demand for new equipment would still remain to be solved. If, as some underconsumptionists believe, the demand for investment goods is solely derived from the demand for consumers' goods and is affected by nothing else, then on the classical assumptions, the rate of interest would always change in the degree necessary to maintain aggregate consumption and aggregate investment at a constant level. If, however, the inducement to invest is also influenced by the rate of interest, some fall in consumption and some rise in investment may take place.

This chapter and the next two chapters will be devoted to a discussion of the connection between consumption and investment (although we shall not, of course, retain the assumption of the last paragraph, that the Law of Markets holds). First, we shall discuss the view that changes in investment are a function of changes in consumers' outlay, and this topic will require all the remainder of the present chapter. In the next two chapters, changes in capital intensity will be studied, first on the assumption of constant technical knowledge and then on the assumption that important innovations in technique are taking place.

1. The connection between consumption and investment has received its traditional exposition in the theory of the relation, or the acceleration principle. This theory, which has played a central part in so many dissertations on the trade cycle,<sup>1</sup> has been given its most recent formulation by Professor J. M. Clark<sup>2</sup> and Mr. R. F. Harrod.<sup>3</sup> It has been used for two main purposes. First, the underconsumptionist explanation of the upper turning point has been criticized because the production of investment goods usually declines before the production of consumers' goods. How, then, can it be maintained that insufficient spending is the cause of the collapse? The theory of the relation provides an answer to this question by demonstrating that changes in investment are a function, not of the absolute level of consumption, but of the rate of growth of consumption. Second, it is a well-known fact that the production of investment goods, or, indeed, of all durable goods, fluctuates more violently during the trade cycle than that of consumers' non-durable goods. The theory of the relation has been used to explain this problem as well.

<sup>1</sup> Cf. Haberler, *Prosperity and Depression*, where a full bibliography is given.

<sup>2</sup> *Strategic Factors in Business Cycles*.

<sup>3</sup> *The Trade Cycle*.

According to this theory, an increase in consumers' demand will cause a proportionate increase in the demand for the services of the equipment needed to produce consumers' goods; but, since the equipment is durable and current additions are small in comparison with the total stock, the result will be a more than proportionate increase in the production of new machines. If, for example, there are 100 machines in period one, 10 of which are replaced every year, an increase of 10 per cent in consumers' demand and therefore in the demand for the services of machines will raise current output to 20 machines in period two. In short, whereas consumption has risen by only 10 per cent, investment has risen by 100 per cent. Let us now suppose that no further increase in consumption takes place; i.e. although there is no absolute decline in consumption, its rate of growth becomes zero. In these circumstances, there will be no demand for new machines and, since output for the purpose of replacement has risen by the equivalent of only one machine a year, total investment will have fallen from 20 machines to 11 machines. A fall in the rate of growth of consumption will thus cause an absolute decline in investment and a cumulative downswing will begin.

2. We shall now proceed to examine the likelihood of a change during the upswing in the rate of growth of production in the consumers' goods industries. Such a change may come about because, for some reason, people are not spending a sufficient proportion of their incomes, or because it is no longer physically possible to expand production at the previous rate. Only the first of these possibilities really corresponds to the traditional creed of the underconsumptionists and we shall therefore consider it first.

Mr. Harrod supports his contention that the propensity to consume is a decreasing function of real income, by referring to psychological tendencies. "Saving," he writes, "may be classified according to the motives which prompt it. The three principal motives are: (i) to provide a capital sum available for future contingencies when abnormally high expenditure or defective earning power is anticipated (ill health, old age, the education of children, etc.), (ii) to create or increase a regular income from property, and (iii) to acquire prestige and power by the possession of a large capital."<sup>1</sup> He concludes that each of these motives will increase in strength as income rises.

On the whole, this argument seems to be convincing and we should certainly expect to find that the propensity to consume had actually changed in the real world in the way described by Mr. Harrod. It is necessary, however, to bear in mind that other factors may be at

<sup>1</sup> *The Trade Cycle*, p. 106 n.



work which may offset a tendency towards underconsumption. For example, there may be a rapid growth in the machinery of consumers' credits which would encourage instalment buying on a large scale, or capital gains made on the stock exchange may be treated as income and spent on luxuries. The first of these factors, however, represents a secular development, and during the upswing of a short trade cycle it seems probable that the propensity to consume may decline with disastrous results for the inducement to invest.

3. If an expansion has not been previously arrested by credit restriction, underconsumption or some other factor, it may be brought to an end as the combined result of the scarcity of labour and the specificity of the factors of production.<sup>1</sup> According to the theory of the relation, the demand for investment goods is geared to the rate of growth of production in the consumers' goods industries, and this rate of growth may decline, not only if consumers have failed to maintain the rate of growth of their expenditure, but also if it is physically impossible to maintain the rate of growth of production of consumers' goods. In short, there will be no point in ordering new machines on the same scale as before, if it is impossible to get co-operating labour. It must be emphasized that the final limit to output may not yet have been reached. It may still be possible to increase—perhaps very considerably—the absolute quantity of consumers' goods produced. If, however, the rate of growth of production is slowed up, in any large degree, there will be an absolute fall in investment. A shortage of raw materials may have a similar effect.

It may be objected that the history of great inflations is disastrous to this theory, for money incomes have risen almost indefinitely at times of acute labour scarcity till the currency has been destroyed. This evidence, however, is by no means fatal to the theory, for it is clear that when new money is constantly injected into the system by a government which cannot balance its budget, the expansion may well continue. If, however, we assume that the government meets its liabilities out of taxes or genuine savings, a scarcity of labour or raw materials may be the ultimate factor responsible for ending the upswing.

4. So far we have tried to show that a fall in the rate of growth of production in the consumers' goods industries will bring an expansion to an end, and that this may occur as a result either of insufficient spending or of labour scarcity. There is, however, no reason to suppose that the boom must be checked in one or other of these two ways, for several other possibilities, such as credit restriction, must be borne

<sup>1</sup> Cf. Kaldor, "Stability and Full Employment," *Economic Journal*, March, 1938.

in mind. When, however, we try to explain the cumulative downswing, as distinct from the end of the expansion, the underconsumptionist theory of the relation becomes not merely a possible, but a necessary, explanation. For example, it should be possible by restricting credit to reduce investment till it is equal to savings and thus to ensure stability at a high level of output. Since the banks are fallible, investment may perhaps be reduced a little too much and a slight fall in income may take place, but there would be no reason to anticipate a cumulative decline were it not for the forces described by the theory of the relation. According to this theory, if for whatever reason the rise in income is checked, the demand for new investment goods will fall to zero.<sup>1</sup> A precipitous decline in income will then ensue until savings are reduced to the point where they are just adequate to cover replacement expenditure. Indeed, in view of the cumulative effects on confidence, even replacement expenditure may decline and the capital stock may not be fully maintained so that a further fall in income may occur. Thus, even if underconsumption is not the factor which halts the upswing it may be the factor which causes the downswing. With no further need for net investment, net savings should also fall to zero, but there has been no mechanism, other than a sharp decline in income, to bring about this needed adjustment.

5. The trouble about the acceleration principle is that it seems to prove too much. In the real world, as we shall discover in Part II, fluctuations occur in the rate of growth of consumption which do not always lead to a boom or a collapse, and the system does not betray quite the degree of violent instability which this theory would lead us to expect. As Mr. Harrod himself has admitted: "It does not seem probable that net investment and gross investment will fluctuate quite as much as this: the relation rather over-explains the facts." A number of counteracting forces must, therefore, be sought.

It is clear, indeed, that the theory calls for qualification. If the expansion has been proceeding for a long time, the need for replacement will be constantly increasing. It is actually possible that the final increase in the latter may be just sufficient to offset the fall in the demand for new investment, due to a slackening growth of consumers' outlay. This, it is true, may be a highly improbable outcome, but it is certain that production for replacement constitutes an important part of gross investment and that this will moderate the working of the relation.

In the second place, a large expansion of output in the consumers' goods industries may be possible without any large extension of plant.

<sup>1</sup> The fall need not be immediate, since foresight is imperfect.

The very durability of producers' goods, on which the theory of the relation is based, will ensure the existence of unused capacity during the depression and, for some time, "the relation-multiplier,"<sup>1</sup> as Professor Hayek calls it, will be small.<sup>2</sup>

Finally—and here we come to the fundamental issue referred to in the opening paragraph—investment may sometimes be independent of consumption. "Net investment, in addition to that required on the basis of increases of consumption, may also occur because a representative parcel of consumable goods comes to require more capital for its production."<sup>3</sup> We must distinguish clearly between investment intended to "widen" and investment intended to "deepen" the capital structure. The former depends upon the level of consumers' demand and the current amount of excess capacity. The latter, however, is determined by other factors. Herein lies one explanation of the bitter controversy between the Austrian school and the under-consumptionists. The former were concerned with deepening and they therefore contended that consumption and investment are independent; the latter focused their attention on widening and as a result they protested that if there is more thrift there will be less need for producers' goods. Both were right, up to a point, and a modern theory of the trade cycle must take account of both forms of investment.

Changes in capital intensity may occur as a result of changes in the marginal cost of borrowing or changes in real wages. In the opinion of Professor Hayek, these changes may be of the greatest importance, and it is possible, according to his theory,<sup>4</sup> that a rise in consumers' outlay may lead to such a fall in capital intensity that total investment, far from being increased as the result of increased consumption, will actually be reduced. This argument, if it is sound, will seriously weaken the underconsumptionist position, and I shall therefore devote to it the whole of the next chapter.

The depth of the capital structure may, however, be altered, apart from changes in real wages or the rate of interest, because technical advance has made investment more profitable. In the real world, innovations are clearly of the greatest importance during the trade cycle, and I shall review the problems which arise in the third of the three chapters on consumption and investment.

<sup>1</sup> I.e. the amount by which a change in the output of consumers' goods must be multiplied to find the reaction on the output of investment goods.

<sup>2</sup> Cf. Kuznets, *Essays in Honour of Wesley Mitchell*, p. 231.

<sup>3</sup> Harrod, *ibid.*, p. 59.

<sup>4</sup> *Profits, Interest and Investment*, Ch. I.

## CHAPTER VI

### CONSUMPTION AND INVESTMENT—II<sup>1</sup>

THE outcome of recent trade cycle controversy has been, on the whole, a victory for the underconsumptionist school. The modern theories of credit have upset the pleasant neo-classical world where the rate of interest is determined by productivity and thrift alone, and no industrial fluctuations have any right to occur. It has now been established that, in all cases, underconsumption is a characteristic of the depression and that, in some cases, underconsumption may even bring the upswing to an end. These are the solid achievements which the critics of the school must face, and if they are to make a counter-attack it is clear that little will be gained by a reversion to Say's Law. No one can still suppose that the rate of interest is a satisfactory regulating device which adjusts the decisions of those who wish to save and those who wish to invest. On the contrary, if they are to succeed at all they must direct their attack against the opposite flank and dispute the assumption that increased spending can increase the inducement to invest. It is for this reason that Professor Hayek has developed an interesting new theory of capital intensity during the trade cycle.<sup>2</sup> He believes that a high propensity to consume will lower investment, not because it raises the rate of interest, but because it lowers the demand for investible funds. "Under certain circumstances," he writes, "contrary to a widely-held opinion, an increase in the demand for consumption goods will tend to decrease rather than increase the demand for investment goods."<sup>3</sup>

The first part of this chapter will be devoted to a brief summary and criticism of the essay in which Professor Hayek expounds this seemingly paradoxical thesis. In the second part, the fundamental problem of capital theory will be discussed.

1. Professor Hayek's argument is based on the theory of the "Ricardo effect," which asserts that the degree of capital intensity is determined by the level of real wages. He illustrates this proposition with the following example. Five different methods are considered, first in

<sup>1</sup> This chapter was published, with some slight modifications, in the *Review of Economic Studies*, June, 1940.

<sup>2</sup> *Profits, Interest and Investment*, Ch. I. This new work is the latest exposition of the theories of the Austrian School, formerly enunciated in Hayek's *Prices and Production* and Mises' *Theory of Money and Credit*. Cf. also Hayek's "Ricardo Effect," *Economica*, 1942, and Kaldor's "Professor Hayek and the Concertina Effect," *Economica*, 1942.

<sup>3</sup> *Op. cit.*, p. 3.

a position of equilibrium, and then the effect of a two per cent rise in prices is examined, on the assumption that the rate of interest is unchanged. Professor Hayek argues that, while all methods will become more profitable as a result of the rise in prices, there will be a relative increase in the profitability of the "shorter" methods as compared with the "longer" methods—

	2 years	1 year	6 months	3 months	1 month
Initial amount of profit on each turnover in per cent . . . .	12	6	3	1.5	0.5
	(all corresponding to 6 per cent per annum)				
Add 2 per cent additional profit on each turnover due to rise of price of product . . . . .	14	8	5	3.5	2.5
	which corresponds to a per annum rate of				
	7	8	10	14	30
			per cent <sup>1</sup>		

Professor Hayek concludes that: "if the price of the product rises this will increase the amount of profit on each turnover in a corresponding proportion irrespective of the length of the period of turnover; and the *time rate* of profit will be increased accordingly much more for labour invested for short periods than for labour invested for long periods."<sup>2</sup> "The effect," he continues, "of this rise in the rate of profit . . . will be twofold. On the one hand it will cause a tendency to use more labour with the existing machinery, by working overtime and double shifts, by using outworn and obsolete machinery, etc. On the other hand, in so far as new machinery is being installed, either by way of replacement or in order to increase capacity, this, so long as real wages remain low compared with the marginal productivity of labour, will be of a less expensive, less labour-saving or less durable type."<sup>3</sup>

Throughout the present section we shall assume that changes in real wages will, in fact, have this result, and we shall postpone till Section II a discussion of the capital theory involved. The first question, then, to be settled is the probable importance of whatever changes in capital intensity are likely to take place. Professor Hayek's example is clearly unrealistic. It refers to investment for periods ranging from one month to two years, but if we are considering the different kinds of fixed equipment available in the real world, investment for longer periods alone is relevant. If, however, we confine

<sup>1</sup> *Op. cit.*, p. 9.

<sup>2</sup> *Op. cit.*, p. 9.

<sup>3</sup> *Ibid.*, p. 14.

our attention to investment periods of, say, two, three, or four years, a rise in prices of 2 per cent will only raise the annual rates of profit from 6 per cent on all methods to 7, 6.6, and 6.5 per cent respectively.<sup>1</sup> It would seem that Professor Hayek's choice of an example exaggerates enormously the importance of a factor which will be relatively unimportant unless enormous changes in prices take place.

This objection, however, may be put aside for the moment and the application of the Ricardo effect to the trade cycle will be briefly reviewed. During the depression, with real wages high, there will be a tendency to install more capitalistic machinery, when equipment is being replaced, and revival will therefore be hastened. During the first part of the upswing, the existence of excess capacity and unemployed workers will make possible a large increase in consumers' outlay without much rise in prices. Real wages will remain high and widening and deepening will proceed together. This will increase the likelihood that savings will fail to overtake investment before full employment has been reached and prices begin to rise. It must be emphasized that the possibility of underconsumption before this point has not been excluded, but Professor Hayek would regard such an outcome as highly improbable. He then sets out to show that an inflationary upswing may be checked and reversed through a fall in capital intensity and to make the demonstration the more complete he assumes that the rate of interest does not change during the whole course of the cycle, "for it is the rate of profit which is the dominating factor in this connection."<sup>2</sup>

Professor Hayek assumes that real wages will fall as prices rise during the latter part of the upswing. "For the present we shall just take it as a fact—and it is probably one of the best established empirical generalizations about industrial fluctuations—that at this stage prices of consumers' goods do as a rule rise and real wages fall."<sup>3</sup> According

<sup>1</sup> Admittedly, a rise in prices of 2 per cent is a modest assumption. Between 1919-20, wholesale prices in the U.S.A. rose by almost 30 per cent. But, in the above example, a rise of even this magnitude—which was, of course, quite exceptional—would raise annual rates of profit on investments for 2, 3, and 4 years from 6 per cent on all three to only 21, 16, and 13.5 per cent respectively. The relative change is still much less than that shown in Professor Hayek's example. Moreover, when a large change in prices takes place it can no longer be assumed that money wages will remain constant. During the post-war boom, money wages rose so fast, in the U.S.A., that real wages did not fall. (Cf. below, Part II, Ch. XII.)

<sup>2</sup> *Op. cit.*, p. 3.

<sup>3</sup> *Ibid.*, p. 11. Some recent articles, however, have cast doubt on this generalization. Cf. J. G. Dunlop, "The Movement of Real and Money Wage Rates," *Economic Journal*, September, 1938; L. Tarsis, "Changes in Real and Money Wages," and J. M. Keynes, "The Relative Movement of Real Wages and Output," *Economic Journal*, March, 1939; M. Kalecki, *Economic Fluctuations*, Ch. IV.

to the theory of the Ricardo effect, the result will be a fall in capital intensity. At first this will merely tend to damp down the expansion, but Professor Hayek is convinced that a stage will be reached when the reduction in capital intensity will offset, and more than offset, the inducement to increase investment by widening the capital structure. There will then be a fall in total investment relatively to savings, and a cumulative downswing will begin. This, in brief, is Professor Hayek's explanation of the upper turning-point.<sup>1</sup> The boom will come to an end because in these circumstances the increased demand for consumers' goods will lead to a fall in the demand for producers' goods.

But the cumulative downswing is still unexplained. If the theory of the Ricardo effect is not fallacious, it is possible, as we have just seen, that falling capital intensity, due to falling real wages, will reduce investment till it no longer is greater than savings. The upward movement will then be checked, but we have not yet discovered the reason why it should be reversed. Would it not be possible for the system to remain in equilibrium at a high level of activity? Professor Hayek does not discuss this question in his essay, but he would, I believe, point out that as soon as income ceases to grow widening will cease altogether. This, of course, is the solution to the problem, *but it is an underconsumptionist solution*. It does not follow, it is true, that an increase in consumers' outlay would avert disaster. It may be that the system must fluctuate between a situation where consumption is too high and prices are soaring, and a situation where consumption is too low and prices are falling, without any resting place in between. But it is interesting to note that, granted all the necessary assumptions, this most recent statement of the under-saving case can only explain how the boom may come to an end; it cannot explain the downswing without resorting to a theory of underconsumption.<sup>2</sup>

<sup>1</sup> *Op. cit.*, pp. 24-9.

<sup>2</sup> Professor Hayek regards his new essay as a continuation of the thesis of *Prices and Production*. In his earlier work, an injection of credit at a position of full employment leads to an undue lengthening of the structure of production. He now says (p. 5, *Profits, Interest and Investment*) that the main difference between his present position and his earlier position is the removal of the assumption of full employment, and he implies that the increase in capital intensity, described in *Prices and Production*, referred to the beginning of the recovery and not to the end of the boom, as most of the exponents and critics of his theory have supposed (p. 38 n). But he believed then, as he believes now, that an expansion started in this way would end in inflation unless credit were restricted.

But, if his present argument is correct, the assumption of full employment, in *Prices and Production*, was not merely misleading; it falsified the argument. For if there is to be an excessive increase in capital intensity during the revival, this can only come about because there is not full employment and real wages are high and will remain high for some time after the recovery has begun. The injection of new

It is clear, moreover, that if changes in capital intensity occur in the way described by Professor Hayek, and if their magnitude is so enormous as to offset, at times, the demand for widening, the general effect of these changes will be to damp down the cycle till it virtually disappears. When the upper turning-point is passed, falling prices and rising real wages should increase capital intensity and rapidly restore investment activity. A prolonged depression would then be difficult to explain. During the later stages of the upswing, on the other hand, falling capital intensity should moderate the violence of the boom. It is, indeed, possible that changes in the depth of the capital structure would always be sufficient to offset changes in its width, and cyclical fluctuations would not occur. Professor Hayek's model of the trade cycle is not self-generating. On the contrary, apart from external shocks there would be little reason, on the basis of his theory, to suppose that wide cyclical fluctuations would occur at all.

2. The foundation of Professor Hayek's theory is the Ricardo effect. If the latter is sound, some of his deductions may follow, but if it, itself, is fallacious, the whole structure will collapse. Is it true that the degree of capital intensity is determined by the level of real wages? Professor Hayek believes that, even with a perfectly elastic supply of credit, a fall in real wages will lead to the adoption of less roundabout methods. This situation corresponds to one of the special cases studied by Mr. Kaldor in a recent article, but his conclusion was that: "a fall in real wages will increase the scale of investment (until marginal real wages in the new equilibrium are the same as before), but it will leave the method of production adopted unchanged."<sup>1</sup> This conclusion is diametrically opposed to that reached by Professor Hayek.

The difference between the two theories can be shown on a diagram. Direct labour ( $a$ ) is measured on the  $x$ -axis and indirect labour ( $c$ ) on the  $y$ -axis<sup>2</sup>; the  $PP$  curves are equal product curves and constant returns to scale are assumed. Direct labour includes depreciation charges so that any combination of  $a$  and  $c$  will produce a given amount

credit at a position of full employment should have led to a fall in capital intensity, not an increase.

Professor Hayek did not analyse in detail the end of the inflation in his earlier work, but such an analysis was carried out by Mr. Durbin in *Purchasing Power and Trade Depression*. Mr. Durbin concluded that the ultimate cause of the downturn can only be credit restriction. Professor Hayek has not, I think, commented on this interpretation of his work, which leads, of course, to a conclusion precisely the opposite of that reached in his new essay.

<sup>1</sup> "Capital Intensity and the Trade Cycle," *Economica*, February, 1939, p. 49.

<sup>2</sup> The ratio of direct to indirect labour corresponds to Professor Hayek's investment period and to Mr. Kaldor's ratio of annual cost to initial cost.



of output for ever. The slope of a line joining the two axes will give the marginal productivity of waiting, which must, in equilibrium, be equal to the rate of interest.

In period 1, equilibrium is reached at the point where  $EF$  is tangential

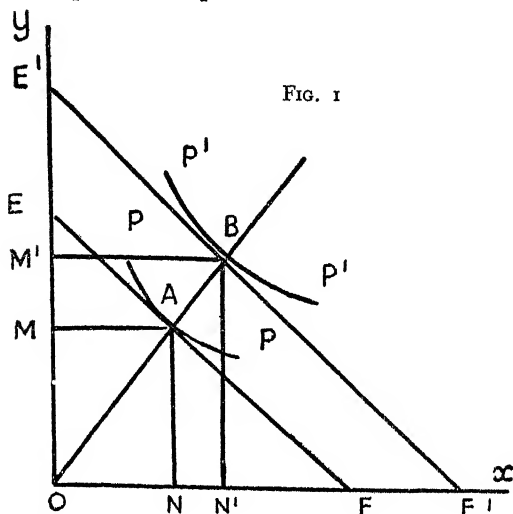


FIG. 1

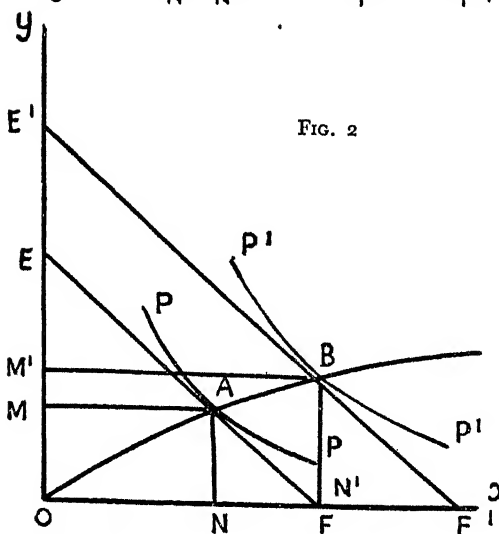


FIG. 2

with the curve  $PP$ . The slope of  $EF$  is determined by the rate of interest and its distance from the origin, i.e. the volume of output, depends upon the level of effective demand. In this situation, direct labour  $ON$  is combined with indirect labour  $OM$ . In period 2, prices are supposed to rise. The line  $EF$  will now shift to the new position  $E'F'$  and it will be tangential with an equal product curve at  $B$ .  $ON'$  of direct labour will now be combined with  $OM'$  of indirect labour. If there are constant returns to scale the point  $B$  must lie on the same radius from the origin as point  $A$  (see Fig. 1); direct labour and indirect labour will then be combined in the same proportion as before and the change in prices will change the scale of output but leave unchanged the degree of capital intensity. This

is Mr. Kaldor's conclusion. In order to validate Professor Hayek's conclusion, on the other hand, it would be necessary to suppose

that the successive points of tangency lie on a curve which is convex upwards, as shown in Fig. II; in other words, we must assume a special type of production function which is non-homogeneous. But there is no reason why production functions should have this shape.<sup>1</sup>

Mr. Kaldor's theory may now be illustrated with the aid of an arithmetical example. For reasons advanced elsewhere,<sup>2</sup> Mr. Kaldor regards the concept of an investment period as an unsatisfactory measure of capital intensity, and he prefers "the ratio between initial cost and annual cost involved in the production of a certain stream of output."<sup>3</sup> Annual cost includes replacement charges and the cost of co-operating labour. Let us suppose, then, that two methods of production are available, one of which requires relatively more initial cost and relatively less annual cost than the other. The object of the firm is to maximize net profits and we shall therefore examine the effect of a change in real wages on net profits earned on both methods. A complication is introduced by the fact that, if the supply of credit is infinitely elastic, it is necessary to suppose that the size of the firm is limited by imperfect competition in the product market or the factor market, or by diminishing returns. Since the last limit can be ruled out, while the second is relatively rare, we shall assume that the limit is set by imperfection of the product market. Let  $MR$  represent marginal revenue;  $GP$  gross profits;  $NP$  net profits;  $c$  the initial investment;  $a$  annual costs; and  $i$  interest charges on the initial investment. It is assumed that  $MR$  falls off by 10 units for every additional unit of output. This assumption will not, of course, affect the argument, since all methods will be affected in the same way. Let the supply of credit be infinitely elastic, at the rate of five per cent. The initial situation is illustrated in the following table—

## METHOD I

$c = 1,000$ ;  $a = 50$ ;  $i = 50$ ; all per unit of output.

Potential Output Capacity	$MR$	$GP (MR - a)$	$NP (GP - i)$
1	150	100	50
2	140	90	40
3	130	80	30
4	120	70	20
5	110	60	10
6	100	50	—

Total net profits: 150.

<sup>1</sup> We should have to suppose that capital is a *regressive* factor of production (cf. Hicks, *Value and Capital*, p. 93).

<sup>2</sup> "Annual Survey of Economic Theory," *Econometrica*, 1937, p. 201 *et seq.*

<sup>3</sup> "Capital Intensity and the Trade Cycle," *loc. cit.*, p. 47.

## METHOD II

 $c = 1,200$ ;  $a = 40$ ;  $i = 60$ ; all per unit of output.

Potential Output Capacity	MR	GP	NP
1	150	110	50
2	140	100	40
3	130	90	30
4	120	80	20
5	110	70	10
6	100	60	—

Total net profits: 150.

Both methods are equally profitable for both yield a net profit of 150, when investment is carried, in each case, to the point where marginal efficiency is equal to the rate of interest. Moreover, the marginal productivity of waiting, i.e. the ratio of annual cost saved to the extra initial cost necessary to transfer from one method to the other, is also equal to the rate of interest, i.e.  $\frac{10}{200} = 5$  per cent.

Now, suppose that prices are doubled. The rate of interest remains constant as in Professor Hayek's example. *Then both methods will still be equally profitable—*

METHOD I				METHOD II			
Potential Output Capacity	MR	GP	NP	Potential Output Capacity	MR	GP	NP
1	300	250	200	1	300	260	200
2	280	230	180	2	280	240	180
3	260	210	160	3	260	220	160
4	240	190	140	4	240	200	140
5	220	170	120	5	220	180	120
6	200	150	100	6	200	160	100
7	180	130	80	7	180	140	80
8	160	110	60	8	160	120	60
9	140	90	40	9	140	100	40
10	120	70	20	10	120	80	20
11	100	50	—	11	100	60	—

Total net profits: 1,100.

Total net profits: 1,100.

For each method, output has thus increased from 6 units to 11 units, while net profits have risen from 150 to 1,100. The relative profitability of the two methods has therefore been completely unaffected

by the fall in real wages. If, however, the rate of interest were to change, the two methods would no longer be equally profitable. If the rate were higher than five per cent, Method I would yield a higher total net profit; if it were lower than five per cent, Method II would be more advantageous. Hence, in these circumstances, the rate of interest is the sole determinant of capital intensity; changes in real wages will not affect the choice of methods at all.

3. Let us now remove the assumption that the rate of interest is constant. Professor Hayek may, perhaps, have unduly restricted his scope by making this assumption, and when it is removed it may yet be possible for an increase in consumers' outlay to lead to a fall in investment. It is only necessary, however, to state this suggestion in order to see that it is fallacious. It is true that, with a rising supply curve of credit,<sup>1</sup> a fall in real wages which brings about an increase in total investment and a rise in the current rate of interest will reduce capital intensity. It must be emphasized, however, that this can only occur because the demand schedule for credit has moved to the right. Capital intensity will only be reduced because, in actual fact, total investment has increased and the marginal cost of borrowing has, in consequence, been raised. Our conclusion is therefore quite unequivocal. *It is logically impossible for a reduction in depth to offset an increase in width and, given the supply schedule of loanable funds, an increase in consumers' outlay can never, under any circumstances, lead to a fall in the demand for capital goods.* For unless the marginal cost of borrowing is raised, there can be no reduction in capital intensity; and unless total investment is raised, there can be no increase in the marginal cost of borrowing.

4. This conclusion is diametrically opposed to Professor Hayek's, and we shall first seek for an explanation by examining the different methods of approach of Professor Hayek and Mr. Kaldor respectively. The former retains the concept of an investment period as a measure of capital intensity, but the latter takes as his index the ratio between initial cost and annual cost. Mr. Kaldor assumes that investments are planned for an indefinite period, in the sense that annual charges include full depreciation allowances, whereas Professor Hayek talks of investments for one year, investments for two years, and so on. Is it possible that Mr. Kaldor, by simply deducting certain depreciation charges from gross profits, is really avoiding the whole issue, for this appears to be tantamount to assuming an equal investment

<sup>1</sup> It is still assumed that the size of the firm is limited by the imperfection of the product market. Although the cost of borrowing is rising the supply of credit is still more elastic than the marginal efficiency curves.

period for all methods? If this is so, then his conclusion simply follows because he has excluded at the outset the possibility of changes in the period of investment. Is it possible that these conflicting theories really refer to two different special cases? Perhaps, Mr. Kaldor's conclusion will hold only so long as differences in capital intensity are reflected in the amount of co-operating labour required, but leave unaltered the length of the investment period; while it is certain that Professor Hayek's argument can be applied only to the special case where changes in durability alone are important and changes in "automatism" can be ignored.

This, however, is a false scent. Both Professor Hayek's investment period and Mr. Kaldor's ratio of initial cost to annual cost amount to the same thing, in the sense that both measure the ratio of stock to turnover. The period of turnover is, of course, determined by the ratio of stock to turnover, and vice versa. Mr. Kaldor's analysis can easily be transposed into Professor Hayek's terminology without in any way affecting the result.

The real source of difference lies rather in the incompleteness of Professor Hayek's analysis of the Ricardo effect. In no place in his essay does he attempt to discover the effect on *aggregate* net profits of a change in real wages. But the aim of the entrepreneur is the maximization of net profits and until we have discovered how the latter will be affected we can say nothing about changes in capital intensity. In the example above, we have been concerned with net profits and we have shown that the choice of method is independent of the level of real wages. In order to show that this conclusion did not depend upon some concealed peculiarity of Mr. Kaldor's measure of capital intensity, let us adopt Professor Hayek's method of approach. We shall assume that there is point-input, point-output,<sup>1</sup> and that no co-operating labour is required. It follows then that—

$$\text{Total net profits} = \text{gross receipts} - (\text{initial cost} + \text{interest charges on initial cost})$$

This formula solves the problem. It is clear at once that changes in real wages will have no influence on the choice of method, for gross receipts and net profits will be changed by the same amount on all methods. If, however, there is a change in the marginal cost of borrowing, the third term of the equation will be altered to a greater extent on the more capitalistic methods, and in this case—but in this case alone—the degree of capital intensity will be changed.

<sup>1</sup> i.e. the investment is carried out in a very short period and after a certain lapse of time the return is received in a very short period, and does not accrue gradually over a number of years. The maturing of wine is the traditional example.

5. So far we have assumed that the scale of operations is limited by the imperfection of the product market, but let us now suppose that the limit is set by the ability of the firm to raise investible funds. This case seems, at first sight, to be more favourable from Professor Hayek's point of view—although he does not refer to it at all—for the determinant of capital intensity is now the level of real wages, and not the marginal cost of borrowing. The new situation can be most conveniently elucidated by studying the special case where there is perfect competition in the product market but the supply of funds to the firm is perfectly inelastic. So long as the supply of funds was infinitely elastic it was possible to ignore the average rate of profit on the total amount invested on each method, and aggregate profits were maximized by maximizing profit per unit of produce. But in the special case we are now considering, when the firm finds itself confronted, in Mr. Hawtrey's phrase, with "a vertical wall" in the capital market, it must so distribute the fixed resources at its command that average profits will be maximized, for in this way it will maximize aggregate net profits. Now it can be seen from our example above that a rise in real wages will raise average profits more on shorter methods than on longer methods. The two methods were equally profitable at the outset but the average rate of profit was 7.5 per cent on Method I, and 7.08 per cent on Method II. When prices were doubled, the average rate on Method I rose to 15 per cent, but on Method II it rose to only 13.3 per cent. So long as the supply of credit was elastic this fact was irrelevant, but with fixed resources it will clearly be profitable to choose less capitalistic methods. It is equally clear, however, that it will not be profitable to leave a part of the available resources unused. The firm will install a larger number of less capitalistic machines, rather than a smaller number of more capitalistic machines, but if it was profitable to use the whole of a certain fixed amount of capital before prices rose, it will certainly be profitable to employ the whole amount once more when profits on all methods have risen. Thus, in this case too, total investment will not decline.

6. In the real world, most firms will be faced with both a limited market for their produce and a rising supply schedule of credit. The choice of method may, therefore, be affected either by changes in the marginal cost of borrowing or by changes in the level of real wages. The former will be the determining factor if the marginal efficiency curves are relatively less elastic than the supply schedule of credit; the latter, if the reverse is the case. In the first case, when the criterion of policy is the maximization of net profit per unit of produce, an

increase in consumers' outlay will be followed by an increase in widening and a fall in capital intensity, but the latter can never offset the former, because capital intensity will only be reduced if the marginal cost of borrowing has risen, and this will only occur if total investment has increased (Section 4, above). In the second case, when the marginal efficiency curves are relatively more elastic and the criterion is the maximization of average profits, an increase in consumption will be followed by a reduction in capital intensity, but there will also be an increase in the total amount borrowed because the marginal efficiency curves have risen relatively to the marginal cost of borrowing.<sup>1</sup> In neither case will an increase in consumption lead to a fall in total investment, and we must, therefore, reject altogether Professor Hayek's thesis that the demand for consumption goods and the demand for investment goods can move in opposite directions.

7. The rate of profit is high during the upswing and low during the downswing. In those cases, therefore, where the expansion of the firm is limited by the elasticity of the supply of credit, capital intensity will tend to be reduced during the upswing and increased during the downswing. When, however, the size of the firm is limited by the imperfection of the market, it is not so easy to decide what changes will occur, for the yield on different classes of securities will change to a different degree, or even in opposite directions, during the cycle. But it is probable that the marginal cost of borrowing will rise and reduce capital intensity during the upswing and *vice versa* during the downswing. We have seen above that these changes cannot possibly offset changes in investment which are intended to widen the capital structure, but they may have some slight effect in restricting the amplitude of the cycle.

There is, however, one final point to be noted. We must emphasize, rather cynically perhaps, the unimportance of the complicated problem we have just been studying, for changes in capital intensity, in the absence of innovations, may not be such as to deserve the attention they have so frequently received. We have already argued, in Part I of this chapter, that changes in real wages will not cause entrepreneurs to make an important change in their methods of production, and, as Professor Hicks has remarked: "Interest is too weak for it to have much influence on the near future; risk is too strong to enable interest to have much influence on the far future."<sup>2</sup> Even Mr. Hawtrey himself has admitted that: "In practice, however, even a big drop

<sup>1</sup> Cf. Kaldor, *loc. cit.*, p. 51. The second case is illustrated by a diagram on page 54.

<sup>2</sup> *Value and Capital*, p. 226.

in the rate of interest may take a long time to induce manufacturers to adopt a piece of plant (other than a new invention, which for the moment we have ruled out) which they had previously neglected on the ground that it would not pay."<sup>1</sup> I must, therefore, conclude on a note of scepticism. It is only when innovations are being made that changes in capital intensity have an important influence on the course of the trade cycle. Changes induced by fluctuations in real wages or the rate of interest are likely to belong to the second order of smalls.

<sup>1</sup> *Capital and Employment*, p. 42.



## CONSUMPTION AND INVESTMENT—III

CHANGES in technical knowledge have long been regarded as one of the most important factors during the trade cycle. They have been given a central place in theories otherwise as different as those of Professor Schumpeter on the one hand, and Professor Robertson on the other. It has even been contended that, apart from "external" forces of this kind, cyclical fluctuations would be damped and would quickly disappear. This contention will be considered in the final chapter of the theoretical section; for the moment we shall merely note that it has been made by as recent a writer as Professor Hicks, who has argued that: "It is only possible to make sense of the theory of the trade cycle to which we appear to have been led, to reconcile it, that is, with the most obvious facts of history, if we lay great stress upon the supply of investment opportunities which is provided by 'invention and innovation.'"<sup>1</sup> We are, therefore, dealing with a factor essential in many past theories and which, so far as we can judge, is one of the most important forces in real life.

1. During a period of technical progress a certain part of total investment is independent of the level of consumption. It is carried out not to cope with increased aggregate consumption but because, as the result of a new invention, the marginal efficiency of capital has been raised, and costs can be reduced by substituting a new method for an older method already in use. When, however, old equipment comes to be scrapped, the new equipment with which it is replaced may be of a more capitalistic nature, and total activity in the investment goods industries may be increased. It is held to be a fairly sound assumption that most inventions are labour-saving, rather than capital saving;<sup>2</sup> and will, as a result, be followed by a rise in the degree of capital intensity, but, even if this assumption is false, an important advance in technique is likely to increase investment, for it need scarcely be said that the life of old equipment is not rigidly determined by physical durability alone. On the contrary, an important invention will induce business men to scrap their old plant long before it is incapable of rendering further service, and in this way even the introduction of less capitalistic machinery may

<sup>1</sup> *Value and Capital*, p. 299.

<sup>2</sup> Cf. Hicks, *The Theory of Wages*, p. 121.

raise gross investment because it will shorten the life of existing equipment.<sup>1</sup>

The rate of technical progress is usually more rapid in some industries than in others. During every period of prosperity in the past some great industries have been expanding at a rate which far exceeded the expansion of industry as a whole—in the nineteenth century, the mechanization of the textile industries, railroad development, and the transformation of the iron and steel industry, with the generation of electrical power as an additional stimulus in the closing decades; in the twentieth century, electricity, automobiles, chemicals, petroleum and paper and printing.<sup>2</sup> It is true that, in some cases, the expansion of these industries was accompanied by a decline in other industries. The railways, for example, superseded the stage-coach, just as motor transport, in its turn, has begun to supersede the railway. But these cases are analogous to technical development within one industry. First, the new equipment may well be more capitalistic than that which it has replaced and, at all events, it is probable that the current production of the new investment goods required will exceed the production for replacement which would have taken place, if the change had not occurred, in the industries which are now depressed.<sup>3</sup>

In part, the different rates of growth in different industries are due to changes in taste, rather than changes in technique, but once again the effect is likely to be stimulating.

These changes in taste may come about for a number of reasons, but the most important will be technical invention and changes in real income. As people grow richer or poorer, they will distribute their increased expenditure in different proportions among different commodities, and a certain amount of investment will take place for this reason. During the downswing this factor will be much less powerful, in view of the excess capacity throughout industry as a whole; it may, however, be of some importance during the upswing in offsetting, or partially offsetting, the consequences of a falling rate of growth of consumption. It follows, therefore, that differences in the income elasticities of the demand for different commodities must be taken into account, and exchange disequilibrium may weaken any tendency towards deflation. To put the matter differently, the capital stock may be sufficient to maintain a flow of consumer goods of existing types and in existing proportions. If consumers' demand does not increase further and capital intensity is unchanged, there will

<sup>1</sup> Cf. Harrod, *op. cit.*, p. 60.

<sup>2</sup> Cf. Schumpeter, *Business Cycles*.

<sup>3</sup> The rise of new industries, which offer the consumer a variety of new goods, will also tend to encourage greater consumption.

then be no need for new investment so long as no innovations are made and consumers' tastes remain unchanged. Technical progress may, however, result in changes in the capital stock to take advantage of new economies. Similarly, if the composition of final output is changing—whether because consumers' demands have been altered by the invention of new goods or by some other factor—then the existing capital stock may prove inadequate after all.<sup>1</sup>

Enough has been said to indicate the folly of attempting to understand the trade cycle by studying the relationship between total consumption and total investment. The aggregates must be broken up. For example, house-building accounts for a large part of total investment and the demand for houses is determined by complex factors. Thus, during an upswing a falling rate of growth of aggregate consumption may not cause a decline in total investment if there is a strongly rising demand for house-room. The composition of consumption is altering and the new pattern may require so much more capital than the old that total investment may be sustained. Conversely, if the demand for houses weakens, rising consumption of other commodities may not avert disaster. Similar considerations apply to changes in the demand for shipping, and other examples will suggest themselves. I am still convinced that the acceleration principle is indispensable to explain the trade cycle, but it should be used indirectly to help to account for developments *within* the more important industries and the results should be summated only at a later stage. To try to apply the acceleration principle directly in interpreting changes in total investment and total consumption will lead only to perplexity.

2. So far nothing has been said about the effect of these developments on the volume of gross savings. Technical change may stimulate investment, but it may stimulate saving as well. This is what happens: allowances for amortization take account of probable technical obsolescence as well as physical wastage. Nevertheless, in a period of rapid technical change it is most improbable that, with imperfect foresight and conservative accounting methods, there will be sufficient rise in obsolescence allowances to offset the increase in investment. So much for developments within an industry. As between industries, the possibility of relative change, including the arrival of newcomers, may be one of the risks against which reserves are accumulated. But even over the trend it seems improbable that such savings will cancel out the net increase in investment; and during those periods in which rapid change is taking place, a stimulus may certainly be expected unless the rising industries are much less capitalistic than the old.

<sup>1</sup> Cf. Chapter XIII, below.

## CHAPTER VIII

### THE DISTRIBUTION OF INCOME

IN the chapter on the acceleration principle, a discussion of changes in the distribution of income was for the moment postponed. This topic must now be taken up. It is clear, of course, that these changes may be of the greatest importance and they have, in fact, been given a central position in many theories of the trade cycle. Some attempts have been made to build up a complete explanation of the cycle on the basis of these variations,<sup>1</sup> but most economists have been more modest and have merely attempted to show how the latter will accentuate or perpetuate the working of other forces. Socialists have often described the slump as the result of a shift to profit and a consequent rise in the propensity to save. The opposite view is held by certain over-investment theorists, who point to rising money wages in the latter part of the upswing as the cause of the ultimate disaster. Professor Cassel, for instance, believes that there will be a shift to wages, profits will be squeezed, and, since workers tend to be spendthrifts, the scarcity of savings, which characterizes the high conjuncture, will be accentuated.<sup>2</sup> More recently, Mr. Kalecki has challenged the older explanations with his conclusion that the distribution of income between wage earners and other factors will depend upon the degree of monopoly.<sup>3</sup>

1. In traditional theory, the basic determinant of distribution is the marginal productivity of the factor concerned, with the qualification that a certain period may elapse before changes in costs are adjusted to changes in prices. In more recent studies, a third determinant, the degree of monopoly, has been added to the other two,<sup>4</sup> but the discussion did not proceed much beyond this point till the publication of Mr. Kalecki's essay on *The Distribution of Income*.<sup>5</sup>

He begins his essay by emphasizing the comparative stability of labour's share in the national product in both England and America over a number of years, and he then attempts to explain why this

<sup>1</sup> The theories of Hull and Lescure are examples. But if changes in costs were the only disturbing factor, fluctuations would soon be damped down, as Professor Robertson has shown. (*Industrial Fluctuation*, Ch. III.)

<sup>2</sup> *Theory of Social Economy*, pp. 589-90.

<sup>3</sup> *Op. cit.*, Chs. I and III.

<sup>4</sup> Cf. e.g. Joan Robinson, *The Economics of Imperfect Competition*; or R. F. Harrod, *The Trade Cycle*.

<sup>5</sup> *Op. cit.*, Ch. I.

should be so. The explanation lies, he believes, in the fact that the short period cost curves will have "a special shape which makes for the elimination of factors other than the degree of monopoly from the mechanism of distribution."<sup>1</sup> His views may be briefly summarized: (a) Generally speaking business men have no clear idea of marginal costs, but base their decisions upon the relationship between average prime costs and marginal revenue. (b) Average prime costs are generally constant and if output were pushed to the point where average prime costs were equal to price there would be nothing left for supplementary costs. The latter are met only by restricting output, and their share of income thus depends upon the degree of monopoly. (c) Labour's share in prime costs will, however, be affected by the prices of raw materials which tend to rise relatively to wages during an expansion and to fall during a contraction. Thus if labour's share in total income is relatively constant, this must be due to the fact that prime costs as a whole increase relatively during good years and fall during bad years, and this in turn must reflect cyclical changes in the degree of monopoly.

Superficially this theory may appear to be revolutionary but on closer examination serious defects become apparent. First, to prevent misunderstanding, it should be noted that even if profits were derived exclusively from monopoly revenue as he suggests, this would not mean that the entrepreneur performs no useful function nor that his services have no long-run supply price. It is sufficient to note that even salaries are held to be derived from the same source. Secondly, the term "degree of monopoly" is defined as the relationship between price and marginal cost  $\left( \frac{AR - MC}{AR} \right)$ , and therefore measures the divergence from the optimum position of static theory where price is equal to short-run marginal cost. But this is clearly a dubious concept to use in interpreting a dynamic process where firms are not in equilibrium. Thus, if monetary demand increases and receipts rise temporarily relatively to costs, this has to be interpreted as an increase in the degree of monopoly! Finally, it should be recalled that labour's share varies from industry to industry and that important changes in the relative sizes of different industries take place over the trade cycle.<sup>2</sup> Mr. Kalecki, like Mr. Harrod, largely neglects this factor.

Enough has been said to indicate the futility of his attempt to discover a single determinant of the distribution of income. All that theory can do is to provide a list of possible determinants and try

<sup>1</sup> *Op. cit.*, p. 24.

<sup>2</sup> Cf. Dunlop, *Wage Determination under Trade Unions*.

to explain how each may operate. We shall not now plunge further into the controversy but be content with comments on three points.

(a) Possible changes in the degree of monopoly have been discussed at length by Mr. Harrod in his *Essay on the Trade Cycle*. As people become better off, he says, they tend to pay less attention to minor differences in prices, when they are making purchases. The elasticity of demand thus diminishes and competition becomes more imperfect. The consequent shift to profits will lower the propensity to consume and bring the boom to an end.

But this is surely a somewhat dubious account of how consumers will behave. It is true no doubt that the wealthy count their pennies less carefully than the poor, but it is surely rather far-fetched to suggest that the rise in real income during a single upswing will cause a serious change in habits of this kind, with profound repercussions on the economy as a whole.

Moreover, as Mrs. Joan Robinson has pointed out, in her review of Mr. Harrod's book,<sup>1</sup> there are other forces affecting the degree of monopoly which he has not considered. During a depression, inefficient firms will be eliminated, integration will take place on a fairly large scale, and many cartels will be formed. As a result the degree of monopoly will, perhaps, increase more rapidly than during the expansion. The same objection has been raised by Professor Robertson: "Imperfect mobility of consumers between shops. That is Mr. Harrod's surprise rabbit . . . the rabbit has to be confronted with a formidable snake in the form of the virtual certainty that, however consumers behave, producers behave more monopolistically in bad times than in good."<sup>2</sup> Since there are, therefore, conflicting forces at work it is possible that no large changes will occur in the degree of monopoly between the different phases of the trade cycle, and it seems likely that, in so far as any change does take place, the tendency of producers to form monopolistic agreements during a depression and then to break away from these agreements during a boom will outweigh in importance Mr. Harrod's changes in the elasticity of demand. In any case the probable effect of a diminishing elasticity of demand on the distribution of income is not so clear as Mr. Harrod seems to suggest. Dr. Tsiang rightly points out<sup>3</sup> that firms may not increase their profit margins as a result if the market is oligopolistic and the demand curves are believed to be "kinked." Cartel agreements and amalgamations may, however, lead to increased

<sup>1</sup> *Economic Journal*, December, 1936.

<sup>2</sup> *Canadian Journal of Economics*, 1937, p. 124.

<sup>3</sup> *The Variations of Real Wages and Profit Margins*, Ch. V.

margins, for the fear of getting out of step with one's rivals will then be much reduced.

(b) During the upswing the price of raw materials tends to rise relatively to the cost of labour and there is thus a shift in the distribution of prime costs at the expense of the wage-earners. If the raw materials are imported, activity will tend to be depressed. If, however, they are produced at home the situation will be much more complicated and it is difficult to say, on *a priori* grounds, how the propensity to consume will be affected. In so far as the raw materials are produced by large and wealthy producers, thriftiness is likely to be increased; if, however, the producers are poor the outcome will be more doubtful, though even then it is possible that savings will increase, in order perhaps to pay off mortgages.

(c) So far, only the share of prime factors has been discussed, but important changes may take place in the distribution of income between other classes in the community. It is, indeed, misleading to divide the community into the two simple classes of those who receive prime costs on the one hand and those who receive supplementary costs on the other, for there may be important differences between the propensities to save of different groups within the latter class. If there is an increase in the relative share of corporations at the expense of the other non-wage-earning classes, the propensity to save is likely to rise, and since a relative change of this kind certainly does occur during the upswing, it must be conceded that the underconsumptionist theories of a shift to profits may not be altogether irrelevant as explanations of cyclical changes in the propensity to consume, if these, in fact, take place. The earlier theories were wrong in that they referred only to a shift from labour to profits, whereas an important shift may also take place within the non-wage-earning group itself.

2. In the present section, the effect of changes in money wages will be briefly discussed. A long controversy has centred round the problem, the outcome of which has not been conclusive.<sup>1</sup> I do not propose to review that controversy in detail, but I shall attempt to indicate the main points at issue.

It was generally assumed, in traditional theory, that, at any given position of equilibrium, the marginal productivity of labour is declining. In order therefore to increase employment during the depression it is necessary to reduce real wages and this can be done—so it was believed—by reducing money wage-rates. It followed that a

<sup>1</sup> Cf., e.g. Pigou, *Theory of Employment*; Keynes, *General Theory*; Kalecki, *Economic Fluctuations*; and the following articles in the *Economic Journal*: Harrod, March, 1934, pp. 19-34; Pigou, March, 1937, pp. 405-22, and March, 1938, pp. 134-8; Kaldor, 1937, pp. 745-53.

policy of wage deflation should be adopted and no "true friend of labour" should oppose such steps.

This argument has been attacked at two points. First, there is little reason to suppose that marginal productivity will, in fact, be declining and it is more realistic to assume that output is limited, not by rising costs but by falling revenue curves. Secondly, it is nonsensical to overlook the fact that a change in wage-rates will affect total demand and prices may, therefore, fall in the same proportion as wage-rates, thus leaving real wages unchanged. This second objection has been made with great force by Keynes in *The General Theory*.<sup>1</sup>

It can easily be shown that much depends, in this dispute, upon whether or not the cut in wages induces entrepreneurs to increase immediately their consumption or investment. In order to make this clear let us suppose that non-wage-earners spend the same amount of money, expressed in stable values, on consumption and investment as they did before the cut took place, and, to remove certain other complications, we shall suppose that the various types of wages fall sharply in the same proportion, that wage-earners do not save, that there is perfect competition, that the rate of interest is constant, and that there is no foreign trade. We shall ignore for the moment the special complications involved in the production of durable goods.

Now total income is equal to total consumption plus total investment, and if we subtract workers' consumption from both sides, it follows that capitalists' income is equal to capitalists' consumption plus investment.<sup>2</sup> Since, therefore, we have assumed that the last two quantities do not change, no change can occur in capitalists' income as a result of wage-reductions. The latter must, as a result, be followed by proportionate reductions in prices, for we have assumed perfect competition, which excludes the possibility of unsold stocks, and prices must therefore fall till the real income of the workers is the same as before. There is a certain amount of cake which must be disposed of, and, unless the capitalists take a bigger slice by increasing their consumption or investment, no change in money wages will alter the amount which must be received by the working classes. Wages and prices will thus change in the same proportion and nothing at all will have been achieved by wage-deflation.

So far the argument has been based on the somewhat curious assumption—which Keynes, Harrod and Kalecki believe to be realistic—that entrepreneurs and capitalists make no change in their expenditure *expressed in stable values*. This, however, is surely dubious. Suppose,

<sup>1</sup> Chs. 4 and 19.

<sup>2</sup> Cf. Kalecki, *op. cit.*, p. 76.



on the contrary, that after the wage-cut they spend *the same amount of money* as before. Prices will still fall, since labour's monetary demand has been reduced, but the decline will not be proportionate to the fall in wages which form only a part of aggregate demand. Thus real wages will be reduced.<sup>1</sup> Entrepreneurs' money income will be constant but their real income will have increased. But will the demand for labour certainly increase as a result? The outcome will clearly be uncertain and so much will depend upon other anticipations that confident generalization is impossible. Furthermore, prices may not be flexible, as we have assumed, but may be held fairly steady. Real wages will then fall but unsold stocks will accumulate unless, indeed, the other income recipients *increase* their monetary as well as their real outlay.

3. The argument so far has been strictly applicable only to industries producing transient goods and it must be modified in the case of industries producing very durable goods. In this case, current real wages are not the only important factor, for at certain phases of the trade cycle the elasticity of price expectations will not be positive. During the depression, for example, a cut in money wages may induce entrepreneurs to install some very permanent equipment because they will be attracted by the fall in monetary outlay more than they will be discouraged by the consequent fall in prices. The equipment will last for a very long time but the low level of prices may soon come to an end. During the upswing, on the other hand, a rise in money wages may discourage expenditure, even although it may not be accompanied by an appreciable rise in real wages.

The argument must not, however, be pressed too far or it will become nonsensical. If we suppose that expectations are generally inelastic and that the production of durable goods is therefore very sensitive to changes in money wages, we shall unwittingly succeed in explaining why no cyclical fluctuations should occur. In these circumstances, every rise in money wages should lead to a fall in invest-

<sup>1</sup> It is true that in a closed economy with constant prime costs prices and wages must change in the same proportion unless there is some change in "the degree of monopoly." But there will be precisely such a change when money wages are cut and entrepreneurs and capitalists maintain their former level of expenditure in money terms, for although the elasticity of the demand curves may be unchanged, marginal cost is now less than marginal revenue and "the degree of monopoly"  $\left(\frac{AR - MC}{AR}\right)$  will therefore rise. This definition of the degree of monopoly, as used by Lerner and Kalecki, is clearly very misleading. (Cf. my article on "Private Enterprise and the Theory of Value," *Manchester School*, May, 1948.) For a more thorough discussion of these problems, the reader may be referred to Tsiang, *op. cit.*, and to Dunlop's *Wage Determination under Trade Unions*.

ment, which would check the expansion, while every fall in wages should encourage investment and end the contraction. It is precisely because the elasticity of expectations is greater than zero that the cycle takes place at all. It is only with these qualifications that the argument can be provisionally accepted.<sup>1</sup> It affords some support for a policy of wage-reduction during the depression, provided there are grounds for supposing that producers are optimistic about the more distant future.

4. The argument in favour of wage-cuts is weakened when we remove our final assumption that the cut in wages is swift and universal. In liberal economics, wage-deflation does not proceed in this thorough fashion at all. As Mr. Keynes has emphasized, the wage-level is likely to sag downwards, slowly and unevenly, and this will have a depressing rather than a stimulating effect, for producers will postpone their expenditures, in so far as they can, in the hope of economizing still more in the future. Moreover, it is the expenditure on very durable goods—which should otherwise be most stimulated by falling wage-rates—which will be almost indefinitely postponed, if wages fall slowly and unevenly.

5. A cut in money wages will reduce the demand for working capital and it has been argued that the consequent reduction in the rate of interest will be one of the beneficial effects of wage-deflation.<sup>2</sup> In this respect, however, the "orthodox" theory is weak. There is little reason to suppose that the demand for short-term funds is sensitive in any appreciable measure to marginal changes in the cost of borrowing: it is primarily a function of the level of income, and the fall in the wages-bill will therefore be of slight importance. It is true that there may also be an increased supply of funds to the long-term market with a beneficial effect on security prices. How important this will be it is impossible to say nor need we speculate much on such an

<sup>1</sup> Cf. It has been strongly emphasized by Dr. Lachman: "The rate of interest relates a future income stream to a present capital outlay. With a given rate of interest, the investors' decision depends on the cost of the present outlay and the expected future income stream. . . . It follows that in the case of durable investment, the average yield of which is independent of present conditions, a rise in costs will check the inducement to invest and vice versa." ("On Crisis and Adjustment," *Review of Economic Statistics*, May, 1939, p. 62.) This is perhaps an over-statement of his case. It implies that price expectations are quite unconnected with current prices, i.e. that the elasticity of expectations is zero.

<sup>2</sup> It must not be supposed that the operation of Say's Law would ensure full employment; it would only prevent instability in income due to changes in productivity and thrift. In such an economy a reduction in costs would be the only method of increasing employment, for thus the supply of funds in the investment market would be increased without a corresponding fall in consumption, and total effective demand would rise.

obscure outcome. In so far as rates of interest can be pushed down this can be done more directly by the monetary authorities without resort to such a difficult device as wage-deflation.

6. We shall now try to summarize the various arguments. First, a fall in money wages will probably lead to some fall in real wages and a consequent increase in profits. All will depend upon the changes which may occur in the monetary outlay of entrepreneurs and capitalists. But even if real wages fall the effect on employment will be uncertain. Secondly, if wages fall, there will be some shift in the distribution of income in favour of rentiers, and this change will increase the burden of fixed charges. Third, wage-cuts may encourage entrepreneurs to increase their expenditure, without waiting for any change in real wages to occur. This effect is likely to be confined to the demand for very durable goods and, even then, it will occur only if expectations are inelastic and entrepreneurs are already, for some reason, optimistic about the future. Fourth, when the wage-level sags slowly downwards, entrepreneurs are likely to postpone as far as possible all increases in expenditure, especially in the case of durable goods, and wage-cuts will, therefore, have a harmful effect.

So far international aspects have been ignored, and it must be recognized that the advocates of wage-cuts were often mainly interested in the effect on the foreign balance. By lowering its costs relatively to those elsewhere a country may be able to increase its exports and reduce its imports with beneficial results for the level of employment, although the terms of trade will suffer. These arguments, however impressive in the days of the gold standard, have less relevance to-day when similar results can be achieved by an alteration in the exchange parity of the currency.

The general outcome of the discussion is depressing, because in view of the large number of possible reactions it is extremely difficult to decide in practice whether wage-reductions will be beneficial or not. This will prove to be one of the most knotty problems in attempting to interpret the empirical evidence in the second part of our inquiry.

## THEORIES OF CREDIT SCARCITY

THE main contribution of the "pure" monetary school—original in emphasis though not in substance—is its demonstration that the strategic factor in determining business activity is monetary demand. Much has been written, and indeed much is still being written, about such nebulous concepts as "adjustment to the real factors of economic life," "the underlying forces," and so on. Such phrases frequently occur in business journalism and they are sometimes to be found in more academic works. They are not, of course, without meaning, but they usually conceal a serious confusion of thought. It has been said, for example, that the depression performs at least one beneficial function in eliminating the more inefficient firms, and phrases of this kind are rightly condemned by the monetary school. (The term efficiency is essentially a relative concept, and we must not attribute to it some kind of ultimate meaning which it does not possess. It depends upon the relative level of monetary demand as well as upon technological considerations.) If the level of monetary expenditure is maintained then no "turn of the wheel," or "scarcity of resources," or "decreasing marginal propensity to consume" can lead to a cumulative decline of the familiar trade cycle variety.

This proposition would, of course, be accepted by the majority of modern economists. They would not, however, subscribe to the further proposition that the trade cycle is mainly a monetary phenomenon, for that phrase has a very different connotation. It implies that the turning-points in the cycle are usually caused by the action of the monetary authorities in expanding or contracting the supply of the means of payment, and that the other factors play an essentially passive role; it is the banking system which sets the cumulative process in motion. This additional hypothesis differentiates the pure monetary theorists from the vast bulk of other economists. The latter would not deny altogether the importance of credit policy—who would?—but they would sharply condemn this constant preoccupation with only one factor in the situation. In the present chapter we shall discuss the views of the two leading members of the monetary school, Mr. Hawtrey and Mr. Durbin, and we shall try to show that their attempts to defend an extreme position are unsatisfactory and unconvincing. We shall then discuss some other theories of credit scarcity,

the authors of which would not, however, claim that the trade cycle is mainly due to monetary policy.

1. According to Mr. Hawtrey, cumulative movements can be reversed by changes in the short-term rate of interest. Unlike the majority of economists he still adheres to the classical belief in the importance of the short-term rate,<sup>1</sup> and he does not accept the Wick-sellian innovation which shifted the emphasis in monetary theory to the long-term market. On the contrary, he has always been sceptical about proposals for controlling bond prices<sup>2</sup> and he is not inclined to regard them as a causal factor in the trade cycle; they are a dependent, not an independent, variable. But he believes, on the other hand, that the short-term rate plays an important part in causing fluctuations and that it can be used as a powerful instrument of policy. He does not deny that interest charges on short-term borrowing are an unimportant element in producers' costs, but he contends that they may be very important indeed to the holders of stocks. If the rate rises, merchants will attempt to reduce their stocks and they will be able to do this without much inconvenience. If it falls they will increase their stocks for the sake of the extra convenience of having larger supplies on hand. These changes in stocks will be reflected in changes in the orders given to manufacturers and the whole economic structure will thus be affected.<sup>3</sup> In this way, banking policy may be responsible for the trade cycle.

Why, it may be asked, is the restriction of credit always excessive? Why is it impossible to end an inflation without causing a depression? Mr. Hawtrey has tried to answer this question by pointing to the time-lag which must elapse between changes in the rate of interest and changes in the flow of cash out of or into the banks.<sup>4</sup> During an upswing, for example, a stage will be reached, according to Mr. Hawtrey, when the cash reserves of the central bank have been seriously depleted and the latter is obliged to check the expansion of credit by raising its rate of discount and selling securities. Clearing banks will be forced to follow suit, and the general rise in short-term rates will lead to a fall in merchants' stocks and this, in turn, will bring the upswing to an end. Even if, however, this action is, by some chance, just sufficient to cause the desirable degree of deflation, it

<sup>1</sup> Cf. *A Century of Bank Rate*.

<sup>2</sup> "It is very natural that economists who believe that the efficacy of credit regulation depends upon the influence of the long-term rate . . . should be very sceptical of its power to do anything at all." (*Capital and Employment*, p. 112.)

<sup>3</sup> *Currency and Credit; The Art of Central Banking; Capital and Employment*.

<sup>4</sup> Cf., e.g. *Currency and Credit*, p. 153. The argument was originally developed for a country on the gold standard.

will not immediately check the outflow of cash, for some previous loans will not yet have been used and the external or internal drain will therefore continue. The central bank, which knows nothing about time-lags, will then restrict credit still more, under the impression that rates are still too low, and in doing so it will precipitate a general collapse. At the lower turning-point, on the other hand, it will reduce its rate too low, because increased accommodation to business will not immediately affect its cash position to the full extent.

What is the evidence in support of this theory? It is not, I think, very convincing. The firms which took part in the first Oxford inquiry<sup>1</sup> were almost unanimous in their assertion that changes in the rate of interest have no effect on investment in stocks, although it was generally admitted that these changes might have some effect on confidence. The most favourable answer, from Mr. Hawtrey's point of view, was that of a merchant (I, VIII, 1), who admitted that "a speculator buying stocks for short period changes in price might, because of his small margin, be affected by changes in the rate," but he went on to add that "the volume of stocks is not important here."<sup>2</sup> This evidence is far from being conclusive—a much wider and more detailed inquiry is needed—but such as it is, it lends no support to the views of Mr. Hawtrey.

Another way of testing the theory is to examine the statistics for merchants' stocks, and try to discover whether fluctuations are correlated with fluctuations in the short-term rate. Professor Kuznets's estimates for the U.S.A. certainly lend no support. Stocks frequently increase during the upswing of the trade cycle, when the rate is rising, and decrease during the downswing when the rate is falling. The Federal Reserve Board's index of department store stocks records similar movements. In many cases, Mr. Hawtrey's thesis seems to be flatly at variance with the facts. Mr. Hawtrey, however, has faced this disconcerting evidence and has held that it may not be so damaging after all: "But it is a paradox of credit regulation that, whereas credit relaxation operates by giving an inducement to hold greater stocks of commodities, there actually results little or no increase in stocks. If unemployed productive resources are available, additional supplies can be produced to meet the additional wholesale demand, but the increased productive activity generates additional incomes and additional consumer demand, which reduces stocks almost as fast as they are increased. . . . If productive resources are already fully

<sup>1</sup> J. E. Meade and P. W. S. Andrews, "Answers to Questions on Effects of Interest Rates," *Oxford Papers*, No. I. The results of the second inquiry are discussed below.

<sup>2</sup> *Ibid.*, p. 17.

employed, there can be no additional supplies. The increased wholesale demand will result in accumulating increased orders to producers and there will be a rise in wholesale prices. This rise in prices will be reflected in a rise in incomes and so in consumers' demand. If, as is likely, retail prices lag behind wholesale prices, consumption will exceed production, stocks will be diminished. . . . A reduction of stocks of commodities is a familiar feature of periods of inflation."<sup>1</sup> The second method of testing his theory must therefore be abandoned; apart, however, from the results of direct empirical verification, there are important general considerations which make his theory seem rather unconvincing.

Everything may work out as Mr. Hawtrey says, but it is difficult to believe that whatever variations in stocks may occur will be of much quantitative importance. Keynes remarked that the demand for stocks is likely to be very inelastic.<sup>2</sup> A certain minimum will be required, but if this is much exceeded the surplus will soon prove a positive nuisance. Mr. Hawtrey has denied that this will be the case,<sup>3</sup> but elsewhere he has been at great pains to emphasize that merchants can reduce their stocks without much trouble or inconvenience if the rate of interest rises.<sup>4</sup> If, in fact, the advantages of holding additional stocks are so easily surrendered, it seems unlikely that merchants will bother to increase their stocks in response to a fall in the short-term rate, which will not, at best, be very great. The demand for *speculative* stocks may, however, be more elastic. This possibility was also rejected by Keynes in his *Treatise on Money*.<sup>5</sup> He repeated an old argument of Tooke's, to the effect that fluctuations in prices are more important to the speculative holder of stocks than fluctuations in the rate of discount. Only an expected fluctuation of some 10 per cent in prices would be sufficient to induce merchants to take the risk of making any significant change in their holdings of stocks. Suppose the rate on short-term loans corresponds to 5 per cent per annum. The fall in rate which would be equivalent to an anticipated 10 per cent rise in prices would be enormous; the rate would have to fall from 5 per cent to - 5 per cent. The actual fluctuations in the rate of discount are so much less than this that they can scarcely be regarded as the cause of past fluctuations in activity. But could the short-term rate be used as an instrument of policy, if it were made to fluctuate to a sufficient extent? There is clearly no limit to the extent to which it could be

<sup>1</sup> *Capital and Employment*, p. 248.

<sup>2</sup> *General Theory*, p. 235.

<sup>3</sup> *Capital and Employment*, p. 208.

<sup>4</sup> *Ibid.*, p. 83.

<sup>5</sup> Vol. I, p. 196.

raised; it can even be made infinite by simply calling in advances. An expansion can always be stopped by the use of the short-term rate, but this instrument is much less useful, and may even be quite useless, when the object of policy is not to end a boom but to stimulate a recovery. The rate cannot be lowered below the minimum necessary to cover the costs of short-term investment, while it may be necessary to make it less than zero. This, of course, will be impossible.

Mr. Hawtrey has attempted to meet the argument that changes in price expectations are more important than changes in interest rates for the holder of stocks, and that the burden of carrying costs will discourage speculators in any case. His theory, he says, applies not to stocks of raw materials but to stocks of manufactured goods. In the first place, carrying costs will not be so great in the case of manufactures; secondly, price expectations will be much less important, for since he excludes spontaneous changes in anticipated demand fluctuations in expected price must be caused by expected fluctuations in supply; and, whereas the supply of raw materials is erratic, the supply of manufactured goods is fairly stable, with the result that there will be very little change in expected prices.

It does not follow, however, that if the elasticity of speculative stocks with regard to prices is small it will be large with respect to the rate of interest. On the contrary, one would not expect to find any important changes in stocks during the course of the trade cycle. This, however, is not the case, and it is clearly wrong to dismiss the anticipation of changes in demand unless we assume that the trade cycle itself has disappeared. Without a shadow of doubt the most important factor in determining the stock-holding policy of speculators are the expected changes in consumers' outlay during the cumulative movements. If the economy has temporarily settled down at a stable position, if prices are constant and the elasticity of expectations is equal to one, then no change in speculative stocks is likely to occur and there is little reason to suppose that a change in the short-term rate of interest could, in itself, be sufficient to bring such a change about.

Mr. Hawtrey bases his argument, for the most part, on these supposed changes in merchants' stocks, but he has occasionally referred to another consequence of an alteration in the short-term rate, which is probably much more important, namely the psychological repercussions of a change in central bank policy. Bank rate has come to be regarded as a kind of barometer because, as one of the business men who took part in the Oxford inquiry put it, it is believed to reflect the opinions of the well-informed credit authorities about the



continuance of prosperity. For this reason, if for no other, the short-term rate must not be dismissed as a factor of no importance. Indeed, the psychological consequences are probably more important than the effect on merchants' stocks.

2. Unlike Mr. Hawtrey, Mr. Durbin places very little importance on the short-term rate of interest and he is also sceptical about the importance of changes in the long-term rate.<sup>1</sup> "It is no doubt true," he writes, "that the rise in the market rate of interest exerts some effect on the costs of production and to that extent diminishes investment and accelerates the crisis, but . . . I do not believe that this effect is considerable, having regard to the small fraction of money costs which are directly affected by movements in the rate of interest. In my opinion the whole of post-war monetary theory attaches far too much practical importance to the height of the market rate of interest because movements of the rate have been of so much political significance."<sup>2</sup> The banks restrict credit, he believes, by simply calling in their loans, and it is this action which brings the upward cumulative movement to an end and starts the downswing. "Bank charges in total constitute such a small element in costs, while every part of the system is so very sensitive to changes in prices, that I am convinced that all the major changes must be traced to movements in prices and in the crude relationship between money and goods. The real cause of the crisis is not the change in the market Rate of Interest, but in the course which the price level takes as a result of the forcible restriction of the circulation. It is no doubt true that this contraction is required to make the higher Rate of Interest effective, but the immediate cause of the crisis is the reversal of the crude inflationary movement and not any subtle changes dependent upon fractional movements in the Rate of Interest."<sup>3</sup> The real explanation of the upper turning-point is therefore a very simple one, and, according to Mr. Durbin, the elaborate constructions of recent theory merely succeed in darkening counsel till the student is lost in a bewildering maze of useless metaphysical abstractions.

This is, of course, a plausible explanation of how credit is restricted. More severe regulations about collateral required, or a simple refusal to a large number of customers to extend or renew advances on any collateral whatever, may be more important than any changes which are likely to occur in market rates. But this theory would not be altogether rejected by many people who also place great importance

<sup>1</sup> Cf. *Purchasing Power and Trade Depression* and *The Problem of Credit Policy*.

<sup>2</sup> *Purchasing Power*, pp. 156-157; cf. also p. 91.

<sup>3</sup> *Ibid.*, p. 157.

on other factors,<sup>1</sup> and there are absolutely no *a priori* grounds for supposing that every expansion is stopped in this way. It is one thing to say that the downturn is accompanied by a fall in the monetary circulation. It is an entirely different and wholly fallacious proposition to say that the cause of the downturn can only be credit restriction. Mr. Durbin would not, of course, make any such claim, but he would contend that in the real world banking policy has usually been the prime mover in causing a collapse.

He has, however, only explained how the expansion is brought to an end. He does not tell us how the downswing, as distinct from the depression, is ever halted. A mere increase in the elasticity of credit supply will not bring this about and we must, presumably, resort to some theory about a falling average propensity to save. Mr. Durbin simply assumes that, for some reason, the decline will ultimately cease and there will be a stable period of low prices and low activity. How does a recovery take place? In Mr. Hawtrey's theory the fall in the rate of interest will encourage merchants to increase their stocks and this will lead to an increase in production and general upward movement. Mr. Durbin, however, is precluded from an explanation of this kind, since he denies the importance of the rate of interest, and he admits that his own version of the pure credit theory is incapable of explaining the recovery. Inelasticity of credit supply may check the expansion, but it cannot end the depression! He is therefore forced to resort to a much more general theory about innovations, wage-reductions, or replacement needs.<sup>2</sup> "Hence I hold," he writes, "that the crisis, but *only the crisis*, is a purely monetary phenomenon."<sup>3</sup> But there is no reason to suppose that such asymmetry will exist, for if we admit that changes in the demand schedule due, say, to a series of inventions, may cause a cumulative upswing, we should expect that similar changes due, say, to the completion of a great investment project, can precipitate a slump. Mr. Durbin would reply by appealing once more to the facts.

Unfortunately it is difficult to test Mr. Durbin's theory by empirical observation, but there are several ways in which some information can be derived. First, there are the direct statements on policy made by the banks themselves. Second, if it is found that commercial loans continue to rise for some time after the fall in production, then we may conclude that the banks did not cause the decline by calling in

<sup>1</sup> Cf., e.g. Hicks, "Mr. Hawtrey on Long- and Short-term Rates of Interest," *Manchester School*, June, 1939.

<sup>2</sup> *Ibid.*, pp. 163-4.

<sup>3</sup> *Ibid.*, p. 155.

their loans. (An increase after the downturn in production is not paradoxical, for it implies that the banks are giving increased accommodation to "distressed borrowers"). If, on the other hand, the decline in loans should precede the decline in production, it might still be wrong to conclude that Mr. Durbin's theory is applicable for the fall in loans may be due to a decrease in demand rather than a decrease in supply. Third, although the restriction of credit may, perhaps, operate through the calling in of loans, rather than through the rate of interest, this may at least be *accompanied* by a sharp rise in rates, for the banks may make the most of the opportunity to increase—or maintain—their profits. Fourth, there is the method of a questionnaire. The last method will be discussed below; the first three will be employed in the second part of the book in analysing American business cycles.

3. So far we have been concerned with the short-term market, but many economists who believe that the upswing is brought to an end by a rise in the rate of interest have been mainly concerned with the long-term rate or with some kind of composite rate of interest. These theories of under-saving are frequently set forth in rather vague terms. For example, Professor Cassel writes: "The typical modern high conjuncture does not mean over-production or an over-estimate of the demands of consumers or the needs of the community for the services of fixed capital, but an over-estimate of the supply of capital or the amount of savings available for taking over the real capital produced."<sup>1</sup> It is somewhat difficult to understand precisely what this sentence means, for the whole of the upswing is due to just such an over-estimate of the amount of savings and it is only because investment exceeds savings that a cumulative movement takes place at all. Why then should the very over-estimate which initiated the upswing be the factor which brings it to an end?

It is clear from the previous chapters that if the crucial factor is arise in the "pure" yield this can be due to two causes: first, arise in the short-term rate of such a magnitude that the expected average of short-term rates on which the yield is based will be appreciably altered; secondly, an exhaustion of speculative resources. The first change is due to banking policy, and the second may be influenced by it.

At first sight, it would seem that the banks can affect the long-term rate directly, by buying or selling securities, and indirectly, by changing the short-term rate which will cause a shift of resources from the bond market to the now relatively more attractive bill market. But if speculators still attempt to stabilize the price of first-class securities,

<sup>1</sup> *Theory of Social Economy*, pp. 625-6.

the effectiveness of the first of these methods will be reduced. Thus there may be a tug-of-war between the speculators and the banks and the outcome will depend partly upon the extent to which speculators operate with their own resources. In so far as they borrow from the banks, their efforts may be weakened directly, for the banks may raise the cost of such borrowing or simply refuse to renew or extend loans. As for the second method, it must be admitted that if the long-term rate is in fact determined by expected short-term rates averaged over several years, a current change in these rates may not have a large effect on this average which is the basis of speculative action. It is impossible to predict the outcome *a priori*, the more so since expectations will be so important and the interpretation placed upon the action of the banks will influence the speculators' decisions.

The second situation, in which speculative resources are no longer sufficient to maintain the yield at a level consistent with the expected level of short-term rates, corresponds more closely with the idea of a scarcity of savings. We shall now consider the conditions which are likely to bring about such a situation. When a single increase in investment takes place in one period which is not maintained in subsequent periods, the speculators who buy securities and thus prevent a fall in their prices will ultimately be able to unload their additional holdings on new savers, since income must expand to the point where the additional savings are equal to the additional investment. When, however, the new level of investment is maintained in all subsequent periods this will not be the case. The position can be elucidated with the aid of an example. Let the marginal propensity to save be  $q$  and let investment increase by  $\pounds x$  in period one, and remain at this higher level in the future. Income earned in the investment goods industries will rise by  $\pounds x$ , savings will therefore have increased by  $\pounds qx$ , and in the next period speculators will only have to take up  $\pounds x(1 - q)$ . In the third period, savings will increase by  $\pounds qx(1 - q)$ , and so on. Finally, new savings will have risen to  $\pounds x$ , and no further increase in income will take place. Further increases in speculators' holdings will not be necessary, but these holdings have already increased by  $\pounds x$  plus  $\pounds(x - qx)$ , plus, etc., and they will never be able to pass over to new savers more than  $\pounds x$  of securities. It is possible that speculators will grow alarmed at the size of their holdings or that the supply of short-term funds for speculative purposes may be insufficiently elastic. The expansion may thus be brought to an end.<sup>1</sup>

<sup>1</sup> In this situation there is, in a sense, a scarcity of savings, but it must be emphasized that an increased propensity to save would not improve the situation. If such

4. Let us now refer to lower grade securities. The yield on the latter is differentiated from the yield on government bonds by a greater risk premium, and since government bond yield is remarkably stable we must conclude that changes in the other yields are largely due to fluctuations in general confidence. In a large measure, these fluctuations simply reflect changes in the general state of prosperity, and they do not usually constitute an independent variable capable of explaining the turning-points. This, it is true, is not always the case. Independent speculation may sometimes occur in the share markets, and security prices may not always reflect with accuracy the expectations of profit. We shall find that the events of 1929 in the U.S.A. constitute a good example of this kind of development, for although a general decline in output had begun in July and August, share prices continued to boom till the autumn. Speculators were apparently convinced that the boom would go on and they therefore continued to buy. These events, however, were exceptional. One can say that, as a rule, the risk premium between the pure yield and the yield on lower grade securities is not an independent variable. Business conditions and stock market prices usually change about the same time, with very little lead or lag in either case.

5. Mr. Kalecki, in his chapter on "The Principle of Increasing Risk,"<sup>1</sup> has pointed to another factor which may limit the scale of long-term borrowing, irrespective of changes in yield. It is a well-known fact that risk charges are a function of the amount invested. When a firm can no longer finance its projects with its own capital and is forced to borrow, additional risks are at once encountered, for the entrepreneur will be unwilling to burden himself with a large volume of fixed-interest obligations, which will become a heavy burden, if prosperity should collapse. This is true of joint-stock companies as well as private firms.

In so far as the argument refers to the bond market, it is, of course, a very old one indeed. It is a well-known fact that firms do not want their financial structure to become too "highly geared," and that they will not permit an indefinite increase in their bonded indebtedness. Mr. Kalecki's originality lies in his emphasis of this fact as a possible check to expansion during the trade cycle. The remainder

an increase were to occur, it would only mean that the rise in income would be checked by a reduction in the multiplier rather than by a rise in the rate of interest.

In an open economy where the rate of exchange is stabilized, the income multiplier will be reduced and not merely will speculators be unable to sell all their holdings of securities to savers, but they will have to *increase* those holdings indefinitely or allow the yield to rise. Cf. Kaldor, *Speculation and Economic Stability*, loc. cit., p. 21.

<sup>1</sup> *Economic Fluctuations*, Ch. 4.

of his case, however, is not quite so convincing. The case of preference shares is different from that of bonds in one very important respect, for these shares do not constitute a *debt*, while at the same time their claim on profits is limited. It is true that charges on them will have to be paid before ordinary dividends are distributed and this may become a heavy drain in bad times. But failure to meet these obligations will not involve the collapse of the firm. Capital will also be raised by the issue of ordinary shares without increasing bankruptcy risks. Mr. Kalecki, indeed, seems to place too little importance on the share market. In 1929, in the U.S.A. for example, new issues of shares exceeded new issues of bonds, and although that year was no doubt exceptional, it serves to indicate that the share market deserves a little more emphasis than that which it receives from Mr. Kalecki.

In short, it would appear that Mr. Kalecki's "principle of increasing risk" may not be of first-class importance. During the upswing only a minority of firms will be making new issues, and of the latter only perhaps three-quarters will be made in the bond market. Of this three-quarters only a still smaller fraction will be made by firms which are becoming anxious about the size of their bonded debts. The fear of a too highly geared capital structure may be some deterrent during the upswing, but its importance is likely to be small, as compared, say, with the exhaustion of investment opportunities.

6. Before passing a final judgment on these theories of credit scarcity, it must be recalled that, to an increasing extent, firms have come to rely on their own resources and do not resort to the capital market at all. It is interesting at this point to refer to the results of the Oxford inquiries into the effects of the rate of interest on producers' plans. In the second inquiry the following questionnaire was sent to about a thousand firms—

"Have any of the following: (a) bank rate, (b) rate of discount on bills, (c) the level of interest charges on bank overdrafts, (d) the facility with which bank overdrafts can be obtained, (e) the yield on government securities, (f) the facility with which you can raise new capital from the public, ever affected: (I) Your decision to make or to defer from making expenditure on plant extensions. (II) Your decision to make or to defer from making expenditure on maintenance and repairs. (III) The size of your holdings of stocks."<sup>1</sup>

Only 309 replies were received, but of these no less than 246 answered all the questions in the negative. "The comments of business men who gave completely negative answers are dominated by those

<sup>1</sup> P. W. S. Andrews. "Inquiry into the Effects of the Rate of Interest," *Oxford Economic Papers*, No. III.

who gave the fact that they had always had sufficient resources for the investments which they made as their main reason for not having been affected by the factors mentioned."<sup>1</sup>

One must not, of course, place too much reliance on the results of this type of inquiry. The firms may not have been sufficiently representative or they may not have answered properly. If it is assumed, however, that the inquiry was not rendered wholly useless by these defects, the conclusion which emerges is a very important one. Only 20 per cent of a group of supposedly representative firms admitted that their plans had been in any way affected by credit conditions. It is clear at once that all the theories of credit scarcity discussed above have far less applicability than their authors imagine, and the relative value of other explanations of the turning-points is enormously enhanced.

It would, of course, be wrong to dismiss as altogether unimportant the theories of credit scarcity. Factors which influence in some measure the decisions of even a fifth of the total number of firms obviously deserve some further study. According to the questionnaire, the most important of the credit factors were *c*, *d*, and *f* (above). If, for each of the three, the number of times it is mentioned is expressed as a percentage of all factors mentioned, the results are as follows—

<i>Question I</i>	<i>Question II</i>	<i>Question III</i>
<i>d</i> , 30%	<i>c</i> , 29%	<i>c</i> , 32%
<i>c</i> , 26%	<i>d</i> , 25%	<i>d</i> , 30%
<i>f</i> , 18%	<i>f</i> , 12.6%	<i>f</i> , 12.5%

This table makes possible some estimation of the relative importance of *c*, *d*, and *f*. Apparently *c*, the rate charged on overdrafts, is not of such relative insignificance as might have been supposed while the long-term rate on the other hand is less important. But the availability of credit can be identified only with difficulty as the sovereign power of Mr. Durbin's theory. It must, of course, be borne in mind that the number of mentions is not a sure indication of importance. The producers concerned may have been influenced as frequently by the short-term rate as by the availability of credit, but they may not have been influenced as much. Mr. R. S. Sayers concludes, however, after an examination of the written comments of the producers, that: "Among the more likely cases, the rate of interest appears to be slightly more influential than borrowing facilities. Of the three kinds of investment—new fixed, maintenance of fixed, and net investment in stocks—the first appears to have been affected most, the third almost as much, and the second hardly at all."<sup>2</sup>

<sup>1</sup> *Ibid.*, p. 70.

<sup>2</sup> "Businessmen and the Terms of Borrowing," *Oxford Papers*, III, p. 25.

Far too much attention has been devoted to conflicting theories of credit scarcity which are based on different factual assumptions, and the Oxford inquiry is important because it attempts to shift the whole debate to the empirical plane. If the results of this inquiry have revealed the extraordinary difficulty of empirical verification, that, in itself, is no excuse for a retreat to the misty realm where the debate has, for the most part, been previously conducted. We shall, therefore, accept the results of the Oxford inquiry for the moment, and we shall attempt to draw some further empirical conclusions in Part II.



## CHAPTER X

### THE ALTERNATIVE HYPOTHESES

WE shall now try to bring together the conclusions reached in the preceding chapters, and discuss the alternative hypotheses which will be used in Part II. At the outset, it is convenient to construct a self-generating model of the trade cycle and, at a later stage, we shall allow for the additional complications introduced by "external" factors. We shall, therefore, assume that no change takes place in government policy, political confidence, population, or technical methods of production, and we shall suppose that we are dealing with a closed economy, where bank credit is in infinitely elastic supply. We shall then show that even in these circumstances cyclical fluctuations may occur.

It may, of course, be objected that our task, whether it can be achieved or not, is pointless. It is tempting to condemn, as a useless waste of energy, the whole dispute between those who claim to have constructed self-generating cycles and those who deny that such a construction is possible. I feel, however, that this criticism is not wholly justified and that the cyclical movements in the real world can be more easily understood if we consider, at the outset, a simplified model, and then add to it the complications necessary to explain what happens in the real world. (The real ground for complaint is that sometimes—as in Mr. Kalecki's *Economic Fluctuations*—the simplifying assumptions are not ultimately removed.)

1. Let us suppose, then, that in the peculiar world we have elected to study a cumulative upswing has begun. The supply of credit to industrial borrowers is very elastic, investment is ahead of savings, and income is rising. The expansion may come to an end before a state which roughly corresponds to full employment has been reached, because, with rising profits and rising real incomes, the rate of growth of consumption has declined. (If there is a shift in the distribution of income to the disadvantage of the working classes, the likelihood of underconsumption will be all the greater.) There are no *a priori* grounds for supposing that underconsumption *must* bring the expansion of money income to an end and it is possible that it will go on till the point is reached where the stream of new money entering the economic system exceeds in volume the stream of new goods and a steep rise in prices takes place. This outcome is regarded by the under-saving

school as far more probable than an underconsumptionist collapse at an earlier stage, but it is clear that either development is possible. The dispute between the underconsumptionist school and the under-saving school, which has centred round this point, is therefore rather a futile one so long as it is conducted on general grounds without reference to the evidence.

If an inflationary situation has developed, the rise in money incomes may ultimately be checked in several ways. First, if a shift to profits actually takes place to an appreciable extent, it will tend to increase the community's propensity to save, and this will act as a stabilizing factor and damp down the expansion.<sup>1</sup> In considering this possibility, there has been too great a tendency to assume that it is the workers who will suffer as a result as though income were divided simply between wages and profits. In fact, it is easy to exaggerate the stickiness of money wages during a time when a violent rise in prices is taking place, and it seems probable that wages will follow prices, with only a short time-lag, up the "vicious spiral of a hyper-inflation." There will, however, be a relative increase in profits at the expense of the recipients of fixed incomes, and companies have probably a higher propensity to save than private individuals, even when the latter belong to the wealthier classes. Secondly, there may be a gradual exhaustion of speculative resources,<sup>2</sup> even in a closed economy, and the yield on first-class securities may rise till the expansion has been checked. This rise may, of course, take place before a state of full employment has been reached, although in traditional literature it does not usually bring the upswing to an end till there has been a considerable degree of inflation. It must be emphasized, however, that a scarcity of savings in the first sense—an exhaustion of speculative resources—may occur without a scarcity of savings in the second sense—inflation—or *vice versa*, there may be inflation without an exhaustion of speculative resources. These two different aspects of a scarcity of savings are rarely, if ever, distinguished in the contemporary literature.

2. There are two more factors which may prevent the development of a hyper-inflation in the absence of a government deficit—the growing inelasticity of expectations<sup>3</sup> and the scarcity of labour.<sup>4</sup> The former will discourage entrepreneurs from increasing their outlay on permanent equipment and the latter will involve an additional

<sup>1</sup> Ch. VIII, above.

<sup>2</sup> Our assumption of an elastic supply of bank credit on which speculators may draw makes this much less likely but with their rising commitments their risks will increase.

<sup>3</sup> Cf. Chs. IV and VIII.

<sup>4</sup> Cf. Chs. V and VIII.

deterrent in the form of rising wage costs in the production of this equipment. Labour scarcity will have an additional effect, for the rate of growth of production in the consumers' goods industries will be slowed up and this will cause a fall in investment. No doubt it would be technically possible to use more labour-saving equipment and thus, for a time, to maintain the rate of production of consumers' goods, but there will be no incentive to increase the degree of capital intensity. A shortage of raw materials may also call a halt.<sup>1</sup>

It is one thing to explain why the expansion has come to an end. It is another to explain the cumulative downswing. It follows at once, however, from the acceleration principle that if the rise in income is checked the demand for new equipment will come abruptly to an end. The fall in investment will induce a still further fall in income, according to the theory of the multiplier, and so the downswing will go on. Thus, our model suggests that the economic system may not be able to remain for any length of time at a high level of activity. Once it has ceased to expand it must contract with great rapidity and violence. This characteristic of the model brings out the unrealistic nature of its assumptions. It is true that expansion has often given place to contraction with little pause at the turning point but the downswing has rarely, if ever, been so precipitous as in our model. New investment has not fallen at once to zero and, indeed, it has often remained positive at the bottom of the downswing. Nor is it true that there is never any period of comparative stability at the top of the upswing. The New Era in the U.S.A. was just such a period, and Keynes was clearly wrong when he said that the cycle is asymmetrical with prolonged periods of depression but no prolonged periods of prosperity. Our immediate object, however, is to construct a model and the modifications are made later.

The downswing will continue so long as savings are greater than investment. It will not, however, continue till life is extinguished! As real income and money profits decline, both private and corporate savings will be reduced, and since there is no demand for new investment goods, the slump must continue until, in this way, net savings have been reduced to zero and the sum withheld from consumption is only sufficient to meet replacement needs. It is possible and, as we shall see in Part II, not improbable, that the decline will continue beyond this point because business men will be prepared to live, for a time, on their capital, but replacements cannot be indefinitely

<sup>1</sup> During the inter-war years shortages of raw materials do not appear to have been important in this respect in the U.K. or the U.S.A. at any rate after the post-war boom.

neglected if any production at all is to be possible, and it is this fact, combined with rising propensity to consume, which brings the downswing to an end. For a time, income may remain more or less stable, with savings equal to investment and a large volume of unemployment, and this period may be properly termed "the depression."

3. If, however, the production of investment goods is not sufficient to replace those which are currently worn out, this position of equilibrium will not be stable, for business men, in their attempt to maximize profits, must provide for the current level of consumers' demand, and they will soon find themselves unable to do so, unless they replace the machines which are wearing out. There will, as a result, be an increase in *ex ante* investment, and, since the rate of interest is not determined by productivity and thrift, there will be no corresponding increase in *ex ante* savings, with the result that income will begin to rise—the theory of the multiplier. The increase in income and consumption will call for a still further rise in investment which will in turn call forth a still greater increase in income and thus the expansion will go on. We have now completed the cycle and reached once more the position from which we started.

4. This model is self-generating. It shows that fluctuations will continue independently of external shocks or changes in credit policy, and it has therefore a certain expository value.<sup>1</sup> We shall now proceed to introduce the complications necessary to make the mechanism more realistic. First, we shall remove the assumption of a perfectly elastic supply of credit in the short-term markets.

The short-term rate will tend to rise during the upswing and fall during the downswing and, in so far as it has any important effect on producers' decisions, it will therefore tend to restrict the amplitude of the fluctuations. It is probable that the central bank will try to prevent an expansion from continuing indefinitely till it is checked by full employment or inelastic expectations. An adverse balance of trade or some notion of internal stability may induce the authorities

<sup>1</sup> There is, it would seem, only one point of equilibrium. If gross savings were just sufficient to meet the need for replacement there would, apparently, be no stimulus to increase gross investment, and thus initiate a cumulative upward movement, and, on the other hand, the fact that income was constant would not lead to a fall in investment, because the whole current output of producers' goods would be needed to provide for the current level of replacement. Mrs. Joan Robinson was, I believe, the first to point to this possibility (*Essays on the Theory of Employment*, p. 105, *et seq.*); and it has subsequently been discussed by Mr. Kalecki (*op. cit.*, Ch. 6); and by Mr. Kaldor ("A Model of the Trade Cycle," *Economic Journal*, March, 1940). The latter has argued that the schedules of the demand for, and supply of, investible funds will have a special shape which makes even this position one of unstable equilibrium. For our present purposes, however, it is unnecessary to discuss the matter in detail.

to bring strong pressure on commercial banks and the latter will raise the rates of interest and refuse to grant increased accommodation. Banking action is, however, less powerful during the downswing when the mere elasticity of supply is not enough to ensure recovery if people are unwilling to borrow. It is, therefore, the upper part, rather than the lower part, of the cycle which may be shortened by credit policy. Long-term credit may also, of course, be affected.

5. A large proportion of total investment is carried out, not in response to increasing consumers' demand, but to take advantage of technical progress. If, therefore, innovations are not made at a steady rate, investment will fluctuate independently of fluctuations in consumption. For example, the completion of some new investment project may cut short the expansion before any of the limiting forces of the self-generating model have begun to operate. Or the downswing may be halted before the low point on our model has been reached, if increased knowledge makes profitable the introduction of new methods. It is clear that this is a factor of the greatest importance, which, in the real world, will modify enormously the effect of changes in consumers' demand. We shall find in our empirical study that a decline in the rate of growth of consumption does not always lead to a fall in investment, for the tendency for widening to be reduced may be offset, and perhaps more than offset, by increased investment due to technical progress. Moreover, we must distinguish between changes in technical possibilities and changes in the exploitation of possibilities. During the depression, as distinct from the downswing, entrepreneurs may be under a stronger incentive to consider the adoption of new methods than during a period of prosperity. However, if there is labour scarcity at the top of the boom they may adopt new methods which, even if they are not more capitalistic in the sense that they will not involve an increase in the ratio of initial cost to annual cost, will yet be labour-saving because they will be more efficient and will make possible an increase in output with the same labour supply and the same initial cost. It is true that these methods would have been profitable before labour scarcity was apparent, but due to the imperfect knowledge of entrepreneurs, they may have been overlooked until the difficulties of expanding output acts as an incentive to consider neglected possibilities. Investment of this type may for a time postpone a general collapse.

Finally, we must refer to the theory that innovations occur in waves of varying lengths. Professor Schumpeter, basing his case on the results of investigations carried out by Juglar, Spiethoff, Kondratieff, Crum, Kitchin, and others, has chosen a schematism which comprises

three types of cycle—the Kondratieff, fifty years; the Juglar, ten years; and the Kitchin, three years.<sup>1</sup> The Kitchin will vary according to its position in the Juglar and the Kondratieff; and the nature of the Juglar will partly depend upon its place in the Kondratieff. For example, there may be rapid technical progress for twenty years and then less rapid progress for the next twenty years and, while investment opportunities may be occasionally exhausted during the first twenty years, the exhaustion will be less serious than during the second twenty years. It is, therefore, possible to distinguish short-period and long-period fluctuations in investment opportunities. These fluctuations may be of the greatest importance in the real world, but, in our sense of the word, they are not *trade cycles*, but only forces which affect the course of trade cycles. If the Keynesian method of approach is to be adopted, only a one-cycle schematism can be adopted.

6. We may now list the alternative hypotheses which apply to the turning points as distinct from the cumulative movements—

(a) *The End of the Expansion.*

- (i) a falling rate of growth in the production of consumers' goods due to a falling propensity to consume, which may be due in turn to (a) rising real income, or (b) a change in the distribution of income;
- (ii) a falling rate of growth in the production of consumers' goods due to scarcity of labour or raw materials;
- (iii) a rise in money wage-rates in the industries producing very durable goods, at a time when expectations have become inelastic;
- (iv) a rise in real wages caused by rising money-wages;
- (v) a general inelasticity of expectations, due to a sharp rise in the price level which is not expected to be permanent;
- (vi) credit restriction by the banks;
- (vii) a rise in yield due to (vi) or to falling confidence;
- (viii) a slackening in the rate of technical progress or the completion of a change in the composition of outlay or the depression of an industry which is a particularly heavy user of capital (e.g. building);
- (ix) a decline in the foreign balance;
- (x) a large reduction in government expenditure relatively to taxation.

<sup>1</sup> *Op. cit.*, p. 161 *et seq.*

(b) *The End of the Downswing.*

- (i) a rise in the propensity to consume;
- (ii) an increase in technical progress or a change in the composition of outlay or the revival of an industry which is a heavy user of capital;
- (iii) an increase in production for replacement;
- (iv) a fall in money-wages in the industries producing durable goods, combined with inelastic expectations;
- (v) a fall in real wages caused by falling money-wages;
- (vi) inelastic expectations throughout industry as a whole, because it is felt that prices have reached bottom;
- (vii) cheap and plentiful bank credit;
- (viii) a fall in yield due to (vii) or to rising confidence;
- (ix) a rise in the foreign balance;
- (x) a large increase in government expenditure relatively to taxation.

These are the important alternatives to be discussed in our empirical study of cyclical fluctuations in the United States since 1919. This study will be of a direct nature and no attempt will be made to employ the involved technique of correlation analysis, for it is possible that more can be learned than certain statisticians, such as Mr. Tinbergen,<sup>1</sup> are inclined to suppose from what is described as "the elementary method" of inquiry.

It is, unfortunately, true that on many occasions we shall be unable to estimate with any degree of accuracy the relative importance of several factors, but some decision may usually be reached by the use of what Keynes termed: "the underestimated power of intelligent guessing." I am inclined to suspect that these conclusions may be no further from the truth than those derived from regression analysis, which is itself beset with many dangerous pitfalls,<sup>2</sup> and which tends to conceal the essentially provisional nature of all possible results behind the imposing but sometimes deceptive façade of a complicated mathematical technique. The two methods should, however, be regarded as complementary rather than competitive.

<sup>1</sup> *Business Cycles in the U.S.A.*, 1919-1932, p. 9.

<sup>2</sup> Cf. the review of Tinbergen's works by Keynes in the *Economic Journal*, December, 1939.

## PART II

### CYCLICAL FLUCTUATIONS IN THE U.S.A., 1919-37

“The recourse to realistic study is necessary in order to define the range within which theory is applicable to what did, as compared with what might, happen. It does not dispense with theory, but with some theory.”

D. H. MACGREGOR





## CHAPTER XI

### THE POST-WAR BOOM

THE inflationary boom, which followed the Great War of 1914-18, came as a surprise to many economists. "During the War," writes Professor Cannan, "most level-headed observers believed that a great collapse of trade and industry would come not later than a few months after the conclusion of peace; scarcely anyone thought it would be delayed for two years."<sup>1</sup> After the Armistice it seemed at first that these expectations were about to be fulfilled, for a general decline in activity began. In the U.S.A., the industries which had benefited most by war-time demand became depressed. The production of pig iron fell by over a million long-tons in the first few months of 1919,<sup>2</sup> and steel mills were reduced to working at 65 per cent of capacity.<sup>3</sup> Between January and March, total industrial production declined from 82 to 76, employment from 107 to 102, and factory pay-rolls from 96 to 90.<sup>4</sup> The anticipated recession appeared to be in sight, but it did not take place. In the spring of the year there were signs of recovery and, by the summer, the American economy had entered upon a violent inflationary boom which was to last till the opening months of the following year.

The gloomy expectations of an immediate collapse were not fulfilled, for several powerful factors were at work which ensured the continuation of the war-time boom. In the first place, the end of the war did not mean the collapse of European trade. On the contrary, the demand for American exports increased and the favourable balance for the year exceeded all peace-time records before 1939. Secondly, government spending continued in excess of receipts till the late summer of 1919, and the unfunded debt had reached such dimensions that the banking system was obliged to maintain an elastic supply of credit till the autumn. Thirdly, after several years of war-time production there was an acute need for replacements in various parts of the industrial system. Finally, once the recovery had begun, the expansion gained a momentum of its own and continued with the usual characteristics of the cumulative upward movement.

<sup>1</sup> *Manchester Guardian Commercial Annual Review*, 1920, p. 1.

<sup>2</sup> *International Abstract of International Statistics*, 1919-1930, p. 216.

<sup>3</sup> Slichter, "The Period 1919-36 in the U.S.," *Review of Economic Statistics*, Feb., 1937.

<sup>4</sup> *Federal Reserve Board Report*, 1936, p. 361. (1923-5 = 100 for all these indices.) See Appendices for notes on all statistics and banking terms employed.

1. It is customary to refer to the United States as virtually a closed economy, and this description is usually correct. In the immediate post-war years, however, foreign trade played a major part in determining the course of events. Although munitions were no longer needed, the demand for American exports remained at a high level throughout the year. In the formerly belligerent countries, the cost of demobilization and the acute need for reconstruction of the devastated areas put such a strain upon the government finances that the inflationary methods of the war were not at once abandoned. Moreover, in many places, the whole economic system was seriously disorganized and a large volume of imports was essential. This was particularly true in the case of agricultural products, and the famine in Central Europe brought rich profits to the American farmer, who reached the height of his prosperity in these years. In all European countries, including the ex-neutrals, the invisible tariff, provided by difficult ocean transport during the war, was reduced, and this added a fresh stimulus to importation. The combined result of these factors was an enormous demand for American produce. The favourable merchandise balance for 1919 stands at no less than \$4,016 million. The relative magnitude of this figure can be better appreciated when it is recalled that, in 1919, total new investment, including changes in inventories, amounted to only \$10,517 million.<sup>1</sup>

Inflation developed more rapidly in Europe than in America.<sup>2</sup> Thus sterling was unpegged in March, 1919, and at the same time the exportation of gold was prohibited. By the end of the year the pound had fallen from \$4.76 to \$3.81, a depreciation of 20 per cent.<sup>3</sup> The French franc and the lira were also unpegged in the spring, and they too depreciated. Even in the case of some ex-neutrals, the dollar exchange began to fall.<sup>4</sup> This appreciation of the dollar was not, however, sufficient to prevent an export boom, and still further appreciation was prevented for a time by supplying loans to importing countries. The Allies had not exhausted all the war-loans raised in the U.S.A.,<sup>5</sup> and these were available to meet their foreign deficits. Moreover, American exporters were prepared to grant large credits to importers<sup>6</sup> and as the European currencies began to depreciate they were often prepared to postpone their demand for payment in the hope of a subsequent recovery. The boom was thus allowed to continue.

<sup>1</sup> Kuznets, *National Income and Capital Formation*, 1919-35, Table 10 (current dollars).

<sup>2</sup> Hawtrey, *Currency and Credit*, 1934 ed., Ch. XXII.

<sup>3</sup> *International Abstract of Economic Statistics*, 1919-30, p. 210.

<sup>4</sup> Hawtrey, *op. cit.*

<sup>5</sup> *Federal Reserve Board Report for 1919*.

<sup>6</sup> Hawtrey, *loc. cit.*

2. The expansion, however, was not merely the result of budget deficits in Europe. In the U.S.A. as well, the expenditure of the Federal government exceeded its receipts till August, 1919. For the fiscal year ended on June 30th, 1918, the deficit amounted to \$9.0 billion, but during the fiscal year 1918-19 it rose still further to \$13.4 billion.<sup>1</sup> It is true that other issues were restricted, but when it is observed that total corporate issues, including shares as well as long-term and short-term bonds, amounted to only \$4.7 billion in 1925,<sup>2</sup> a year of great prosperity on the security markets, the significance of the increase in government borrowing becomes apparent.

Professor Kuznets's more inclusive estimates of debts incurred by all government bodies—federal, state, city, etc., combined—record a rise in debt of \$5.1 billion during the *calendar* year 1919, when private investment amounted to \$15 billion.<sup>3</sup> These figures are, of course, more useful than those for the fiscal year, which include war-time expenditure and exclude local activities, but they, too, indicate very clearly the part which government policy played in the post-war boom.

The banking system was, of course, profoundly affected by government policy. A new Victory Loan was floated between 25th April and 10th May, 1919, at 3.75-4.75 per cent, and the banks were obliged to take up a large part of the new issue. For reporting member banks, holdings of U.S. government securities and loans secured by government securities rose from \$2,934 million and \$1,133 million respectively, on 7th March, to \$3,267 million on 2nd May and \$1,421 million on 6th June respectively.<sup>4</sup> But the needs of the Treasury were still unsatisfied. Short-term borrowing continued at a high level, and when the federal debt reached its peak on 31st August, the total was \$26 billion, of which \$16 billion was funded and \$9 billion short-term. It was not till the beginning of 1920 that the improved position of the Treasury allowed the Federal reserve banks a free hand. As the Chairman of the Board explained on 3rd December, 1920, "The principal reason why discount rates were not increased earlier than they were in 1919 was on account of Federal financing."<sup>5</sup> The reserve banks agreed to carry members for six months at rates equal to those borne by the Victory bonds, in order to facilitate the taking

<sup>1</sup> Stewart and Tucker, *National Debt and Government Credit* (Twentieth Century Fund, Incorp.), p. 86 *et seq.* Note.—Billion is used throughout to mean thousand million.

<sup>2</sup> *International Abstract of Economic Statistics*, 1919-30, p. 205.

<sup>3</sup> *National Income and Capital Formation*, p. 24 (current prices).

<sup>4</sup> Beckhart, *Discount Policy of the Federal System*, p. 326.

<sup>5</sup> Cf. *Report of Federal Reserve Board for 1919*.

up of the loan.<sup>1</sup> This agreement lasted till the autumn and proved a means of providing funds for other purposes as well. The hands of the banks were also tied by a special arrangement with the clearing house banks in New York City.<sup>2</sup> The Federal deficit was thus far-reaching in its consequences and was one of the main causes of the inflationary boom which took place.

3. Apart, however, from the fiscal needs, it is doubtful whether the reserve banks would have raised their re-discount rates much before they did so. Their philosophy, as expressed in the reports of the Board, was somewhat reminiscent of that of the Banking School of nineteenth century England. It was thought that, so long as loans are made for productive purposes only, they can never be excessive. It is true that the Board was alarmed by the steep rise in prices, but it was the speculators who were blamed, and throughout the year various warnings were issued to the banking community, reminding it of the consequences of an "improper use of credit." On 20th April, members were urged to make no loans, unless they were calculated to further production or distribution, and it later inquired whether members were not borrowing from the reserve banks on government securities to get funds, not merely for industry and trade, but also for speculation.<sup>3</sup> Similar warnings were issued again, from time to time. The Board felt that a certain amount of deflation was necessary, but it believed that the deflation should proceed in an orderly and gradual manner and should not be forced on members from above, unless indeed the more democratic method should prove unsuccessful.

The embargo on the exportation of gold, which had been maintained till after the flotation of the Victory Loan, was lifted in June, and by October there had been a net loss of gold of \$220 million.<sup>4</sup> This gold went to Japan and to certain ex-neutrals—mostly Argentina—who demanded specie payments, and the gold received from the ex-belligerents was not in sufficient quantities to offset these losses. The reserve ratio of the Federal reserve banks fell from 50·8 per cent in July, 1919, to 43·7 per cent in January, 1920, and they began to show signs of concern. It was hoped, however, that the loss of gold would make the member banks more cautious and the lifting of the embargo was intended to serve, to some extent, the same purpose as a rise in reserve rates. But so long as reserve credit remained cheap and plentiful the loss of gold was not likely to have the desired effect, for members did not hesitate to borrow. The outcome was, indeed, an

<sup>1</sup> Miller, "Federal Reserve Policy," *American Economic Review*, June, 1921.

<sup>2</sup> Beckhart, *op. cit.*, p. 263.

<sup>3</sup> Beckhart, *op. cit.* Cf. p. 134 below.

<sup>4</sup> Abbott, *The New York Bond Market*, Appendix J.

increase in members' reserve deposits from \$1,696 million in June, the month in which the embargo on gold exports was lifted, to \$1,793 million in October. During the same period total reserve credit increased by some \$380 million. Of this total, it is true, \$228 million was accounted for by a rise in re-discounts, but this increase in their indebtedness did not deter the member banks. Their loans and investments rose from \$15.02 billion to \$16.01 billion during these months.

4. The removal of restrictions on new issues, after the flotation of the Victory Loan, was followed by a boom in the share market. New issues jumped from \$112 million and \$152 million in the first and second quarters respectively to \$531 million and \$530 million in the third and fourth quarters respectively.<sup>1</sup> Share prices rose from 63 in January to 76 in July.<sup>2</sup> There followed a slight fall in prices after the unusual boom in July which had been due to the removal of restrictions, but by October the index stood once more at 76.

In the bond market, conditions were, of course, somewhat different. Throughout the whole course of the year, there was a slow but continuous rise in bond yield. On Moody's Aaa bonds, the yield rose from 5.53 per cent in January to 5.73 per cent in December; while on Moody's Baa bonds it rose from 7.12 per cent to 7.77 per cent during the same period.<sup>3</sup> This rise was not very great and it cannot have had an appreciable effect on the plans of producers, but the absolute level of the yield on both types of bonds was fairly high compared with that which prevailed during the subsequent years. Total new issues amounted to nearly \$9.5 billion, an amount which was only exceeded in 1927. The Victory Loan accounted for \$5 billion, and a large part of the remainder was on foreign account.<sup>4</sup>

5. Although the propensity to save was higher in 1919 than in any other year after the Armistice,<sup>5</sup> the boom which developed became highly inflationary. Wholesale prices soared upwards from 129.8 in February to 150.5 in December, a rise of some 16 per cent;<sup>6</sup> while the index of department store sales rose 15 points.<sup>7</sup> On the other hand, the increase in production was slow and uncertain. From May to August the index of industrial production advanced eleven points, but during the next three months it dropped by four points.<sup>8</sup> Some contemporary commentators complain that the boom was mainly

<sup>1</sup> *Common Stock Indices* (Cowles Commission).

<sup>2</sup> *Ibid.*, p. 271 (1926 = 100).

<sup>3</sup> Abbott, *op. cit.*, Appendix A.

<sup>4</sup> Abbott, *op. cit.*, Ch. 4.

<sup>5</sup> Cf. Ch. XIII.

<sup>6</sup> *International Abstract*, p. 210.

<sup>7</sup> *Federal Reserve Board Report*, 1927, p. 174 (1923-5 = 100).

<sup>8</sup> *Ibid.*, p. 174 (1923-5 = 100).

speculative and did not affect production in any marked degree, and it is certainly true that output during the year was low. Agricultural output remained roughly constant, but the index for manufactured goods fell from 138 in 1918 to only 122 in 1919.<sup>1</sup>

This fall in production in 1919, as compared with 1918, was due, in part, to the recession at the beginning of the year, but the monthly index fell as much between August and November as it did between January and March. The decline can be partly explained as the result of frictional difficulties, caused by the change over from a war-time to a peace-time economy, and these difficulties were increased by labour disputes. A large number of strikes occurred, some of major importance, which involved over 4 million workers as compared with over 1 million in 1918.

Transport services, in particular, were very inadequate throughout the year and this retarded production and distribution. Some of the more serious strikes occurred in the transport industry and the severity of the winter was a further complication. At the same time the demand for transport was swollen by the unusual volume of foreign trade, and the industry proved to be a very difficult "bottle-neck" during the greater part of the expansion.

Recession began in the spring of 1920. The indices of all industrial production and of manufacturing production reached their respective peaks in February; while factory employment reached a high plateau between January and March. At first, the fall in the different indices was slight; by September, for example, industrial production had only fallen some six points. But in the closing months of the year the recession developed into a slump of great severity, which carried all the indices to a very low trough in the following year.

1. The "external" stimuli received from public finance and foreign trade weakened or ceased to operate at all, between the autumn of 1919 and the spring of 1920. In the fiscal year 1919-20, the Federal debt was reduced by \$1.2 billion.<sup>2</sup> In the third quarter of 1919, expenditure was equal to receipts and in the fourth quarter there was a small surplus of \$154 million.<sup>3</sup> Dr. Kuznets's estimate of the debts of all government bodies records a rise of \$5,090 million during 1919, but a fall of \$600 million during the calendar year, 1920. Debt reduction thus became important about the end of 1919, and it continued throughout 1920. This, in itself, may be regarded as one cause of the collapse, but it must be remembered that the budget

<sup>1</sup> Mills, *Economic Tendencies in the U.S.A.*, p. 188.

<sup>2</sup> Stewart and Tucker, *op. cit.*, p. 86 *et seq.*

<sup>3</sup> Hawtrey, *Currency and Credit*, Ch. XXII.

deficit had disappeared several months before the upper turning-point was reached. In the meantime, active foreign trade and the cumulative upward tendencies of the usual upswing prevented collapse, but in the spring of 1920, when other difficulties began to appear, the economy lacked the counteracting stimulus of an unbalanced budget, which had prevented a cumulative decline in the spring of 1919.

2. The foreign trade position began to deteriorate in the opening months of 1920. The problem of financing foreign trade and preventing a still greater appreciation of the dollar was never satisfactorily solved.<sup>1</sup> The pound, which stood at \$4.766 in January, 1919, had fallen to \$3.678 in January, 1920, and it fell still further to about \$3.4, in the following months. Subsequent exports of gold by the British Government raised the pound to about \$3.8, but the situation grew worse so far as other currencies were concerned. The collapse of the Japanese market in March was followed by depreciation all round, which affected even the pound in the second half of the year. There was, in particular, a great deal of exchange-dumping by Germany. The final outcome was a fall in America's commodity balance of trade to \$1,301 million in current dollars for the first six months of 1920, as compared with \$2,446 million for the first six months of 1919. It is true that for 1920, the commodity balance was still high, and amounted to \$3 billion, which was more than double the highest levels ever reached between 1922-29. But even this figure represents a fall of \$1 billion as compared with that for 1919. Moreover, the decline in the first few months of the year was much greater than that indicated by the annual total. The latter would have been still lower but for a temporary recovery in the last six months.<sup>2</sup>

3. The reversal of government policy and the fall in foreign investment afford the main explanation of the downturn, but the explanation is not quite complete. The boom which began in 1919 under the combined stimulus of a government deficit and a large favourable balance had gathered a momentum of its own, which enabled it to continue after the first of these factors had ceased to operate in the late summer of 1919. The policy of debt reduction—as distinct from the mere balancing of the budget—became important in the first two quarters of 1920, and it was during the same period that foreign trade suffered most. But, in spite of these adverse changes, wholesale prices continued to rise till May, and the index of department store sales

<sup>1</sup> *Federal Reserve Board Report for 1920.*

<sup>2</sup> *International Abstract*, p. 213. For the first eight months of 1920 the foreign balance was \$1.5 billion as compared with \$3.0 billion for the same period in 1919; for the last four months of 1920, however, it was \$1.5 billion as compared with \$1.0 billion in 1919.



only reached its peak in July. It would seem, therefore, that the expansion might have continued; yet all the indices show a decline in production and employment in February and March, several months before prices and department store sales had reached their respective peaks.

This problem will require some further explanation, and it is necessary, in the first place, to discover why prices and consumers' outlay continued to increase even after employment had begun to decline.

4. The explanation is to be found in the course of wage-rates. Between March and June, 1920, the index of factory employment fell from 116 to 111, but the index of factory pay-rolls after a drop from 125 in March to 123 in April, recovered to 125 in June; in July it fell to 120, but it rose again to 122 in August, when employment had fallen eight points. In short, the rise in wage-rates was sufficient for a time to prevent a fall in pay-rolls, due to falling employment. The index of weekly wage-rates advanced by no less than 14 points in the first six months of 1920, and in June of that year it was 49 points higher than in June, 1919.<sup>1</sup> This was one of the most militant periods in the history of American labour, and it has often been pointed out that the demands of the workers led to serious strikes which retarded the growth of production and thus increased the danger of inflation. But during the critical months rising wage-rates had the additional effect of preventing a fall in pay-rolls and prices.

5. The general state of expectations did not favour a continuation of the expansion. In the first place, the boom had become very inflationary. Between February, 1919, and January, 1920, wholesale prices had risen 21 per cent, and wage-rates had jumped from 185 to 227. Now it has been argued in an earlier chapter that in circumstances such as these price expectations may become inelastic. Business men may begin to feel that a rise of such magnitude and rapidity cannot go on and they may begin to adopt a more cautious policy. Towards the end of 1919 and the beginning of 1920, the only question was when precisely would the Federal reserve banks take more active steps to end the inflation, and the very expectation of such a policy must have had a depressing effect. It must, moreover, be recalled that everyone had anticipated a slump after the Armistice, and when instead a boom took place, this was regarded as a postponement rather than a removal of the danger. In the words of Professor Mills: "The 1920 recession followed the sharp war-time price rise, a rise that bore none of the aspects of permanence."<sup>2</sup>

The state of expectations was reflected in the form taken by

<sup>1</sup> Paul H. Douglas, *Real and Money Wages in the United States* (1914 = 100).

<sup>2</sup> *Prices in Prosperity and Recession*, p. 17.

investment during the upswing. In 1919, the total gross investment of business concerns amounted to \$10 billion, but of this, no less than \$3 billion, or 30 per cent, was accounted for by an increase in inventories. This must be compared with the average percentage of 12 for the period 1922-29.<sup>1</sup> Expenditure on fixed equipment and business construction thus formed a relatively smaller part of total business investment than in later years, and this is, in one way, rather surprising. For several years the American economy had been geared to war-time production and there must, it would seem, have been a large back-log of orders; yet the boom was an inventory boom, rather than a boom in permanent producers' goods. In this respect it differed from the boom in 1929, with very important consequences during the subsequent depression and recovery.

With business men in this frame of mind, the weakening or withdrawal of the "external" stimuli of a large foreign balance and government deficit was bound to have a profound psychological effect. Moreover, the emergence of any further unfavourable signs was likely to be followed by exaggerated repercussions on general confidence and on producers' plans. The rise in the re-discount rates at the Federal reserve banks was perhaps more important in its effect on expectations than in its effect on the cost of commercial credit.

6. There seems to be no evidence of a falling rate of growth of consumption. Dr. Kuznets's estimates for consumers' outlay are not available for 1918 and it is therefore impossible to compare the rate of growth between 1918-19 with the rate of growth between 1919-20. But other statistics throw some light on what was happening. Consumers' outlay, as a percentage of gross national income, *rose* slightly from 75.6 per cent in 1919 to 77.0 per cent in 1920,<sup>2</sup> although income, in 1929 prices, rose from \$63,975 million to \$66,888 million.<sup>3</sup> These figures lend no support to the usual underconsumptionist belief that people will always consume a smaller proportion of a rising income.

The annual figures are, however, peculiarly inadequate for the study of this particular crisis. The important months were at the end of 1919 and the beginning of 1920 and very significant changes may be concealed in the yearly averages. In attempting to study the short-period changes, we must fall back upon the index of department store sales. The monthly index, however, revealed no falling rate of growth. On the contrary, it continued to rise very steeply and between December, 1919, and March, 1920, when the index of

<sup>1</sup> S. Kuznets, *National Income and Capital Formation*, p. 40 (1929 prices).

<sup>2</sup> Kuznet's, *National Income and its Composition*, 1919-38, p. 151.

<sup>3</sup> Private disposable income must have risen still more.

industrial production began to fall, it advanced nine points, as compared with an advance of only six points between June and December, 1919. The quarterly figures showed a similar rise between the last quarter of 1919 and the first quarter of 1920 which exceeded that between any two quarters in 1919 itself. It was only when production and employment had both begun to decline that the index flattened out and it was not till the third quarter of 1920 that an absolute decline took place.<sup>1</sup> This evidence, it is true, is not conclusive, but it is sufficient to relegate the underconsumptionist hypothesis to the position of a highly improbable explanation of how the boom came to an end. (As an explanation of the cumulative downswing, the underconsumptionist theory is still, of course, essential.)

7. There were unquestionable signs of labour scarcity during the boom. Unfortunately the statistics of unemployment in the U.S.A. during the 'twenties are much less satisfactory than the corresponding figures for the U.K., but sufficiently reliable estimates have been made to indicate the broad trends.<sup>2</sup> Thus, in 1919 about a million and a half appear to have been out of work or, say,  $3\frac{1}{2}$  per cent of those seeking gainful employment. This may be regarded as close to the seasonal and frictional minimum and in subsequent years unemployment was at a considerably higher level. The average for the 'twenties was 10 per cent and even in 1929 about four and a half million, or roughly nine per cent, were unemployed. On the other hand, over 1920 the average was only about 5 per cent and since this average figure reflects the decline in the second half of the year, unemployment must have been very low in the opening months.

It follows from our theoretical discussion in Part I that if, as a result of labour shortage, the production of consumers' goods cannot be maintained at the same rate of growth, there will, after a time, be a fall in the demand for producers' goods. This situation is not likely to arise until there has been a considerable advance in wages and prices nor unless the introduction of labour-saving equipment is failing, for whatever reason, to offset appreciably the effects of labour shortage on the demand for widening. In 1920 there had certainly been just such a rise in wages and prices, and the growing inelasticity of supply was further increased by frequent strikes. It might still have been possible to increase production by installing labour-saving machinery, but even in so far as such installation was feasible there was an important consideration which may have discouraged entrepreneurs from resorting to this solution: I refer to the general feeling

<sup>1</sup> *Federal Reserve Board Report for 1937*, p. 174.

<sup>2</sup> Kuznets, *National Income and its Composition*, 1919-38, p. 151.

that the boom would not last and that deflation could scarcely be postponed and certainly not averted. In these circumstances, business men would be reluctant to increase their expenditure on fixed equipment, and, as we have seen, this type of equipment was a smaller proportion of total investment during the upswing than is usually the case. Labour scarcity may, therefore, be regarded as one factor which probably brought the expansion to an end.

Labour scarcity contributed to the decline in another way, by causing a steep rise in wage-rates, which was reflected in a sharp increase in wage-cost per unit of product from 116.4 in 1919 to 130.9 in 1920 in manufacturing industry.<sup>1</sup> In the industries producing durable goods the rise must have been peculiarly depressing in its effects for two reasons. First, the rise in prices was not expected to last and new capital goods would not be likely to earn the current rate of return over their entire lives: secondly, a fall in wages was regarded as inevitable in the near future.

8. It is usually assumed in earlier descriptions of the slump that it was brought about by the long-postponed action of the Federal reserve banks in raising the cost of credit in the autumn of 1919. Re-discount rates were put up in October and the average advanced from 4.19 per cent in October to 4.53 per cent in November. During 1920 the rise continued and by March the average had advanced to 5.64 per cent. In June it stood at 6.20 per cent. In the spring of 1920, the member banks were obliged to increase their re-discounts with the reserve banks. This was followed by a rise in market rates and the rate on prime commercial paper, which may serve as our indicator, rose from 5.38 per cent in October to 6.67 per cent in March and 7.84 per cent in July.

The whole course of events seems to lend support to Mr. Hawtrey's explanation.<sup>2</sup> Prices and wages had risen sharply, gold had been exported, the reserve ratio had fallen, and, finally, credit had been restricted. All these developments correspond to the descriptions of

<sup>1</sup> Unit wage-cost is measured by the ratio of the index of total wages to the index of production. In 1920 the rise in productivity per man-hour was not sufficient to offset the effect of rising wage-rates on wage-cost. These facts indicate the unrealistic nature of the assumptions necessary to prove that changes in money-wages will not affect product-wages (cf. Ch. VIII above). The indices of wage-cost per unit and productivity per man-hour are taken from *Productivity, Wages and the National Income*, by S. Bell (Brooking's Institution, 1940). Productivity is defined as the index of output divided by man-hours worked multiplied by 100. ((1923-25 = 100.)

<sup>2</sup> Mr. Hawtrey has applied his own theory in *Currency and Credit*, Ch. XXII. "The New York Federal Reserve Bank had already put up the rediscount rate to 6 per cent in January, 1920. On the 1st June the rate was put up to 7 per cent. There, as in England, 7 per cent proved to be sufficient." But the recession had already begun in March and April.

the downturn contained in so many of Mr. Hawtrey's works. It is true that wholesale prices rose by 12 per cent between October, 1919, and March, 1920, which implies that the short-term rate was actually negative during the critical months, but entrepreneurs could not foresee this rise with accuracy and expectations, on the whole, were not very elastic. When, however, we examine the magnitude of the rise in the rate on prime commercial paper between October, 1919, and March, 1920, the plausibility of the whole argument seems to disappear, for the rise amounted to only 1·3 per cent. It is difficult to attach any importance to a change of this kind, especially in view of the steep rise in prices. The rise in short-term rates was clearly of little or no importance as a direct cause of the decline.

Moreover, in spite of the rise in short-term rates, "all other loans" do not reach their peak till October, and they increased in the first ten months of the year by \$1,170,000. Since industrial production turned down in the spring, part of this borrowing may have been made to enable business men to meet the sustained increase in pay-rolls, but for the most part it must have been made to enable debtors to meet other and more pressing claims. It was, in fact, distressed borrowing, rather than productive borrowing. But whatever purpose it served, the fact that a large increase took place at all is an indication that member banks did not reduce their assets at the expense of industry and trade. Mr. Durbin's contention that the downturn is usually caused by the calling in of loans is inapplicable.

In the long-term market the fall in bond prices continued in 1920, and the yield on Aaa bonds rose from 5·75 in January to 5·92 in March and 6·38 in June; while the yield on Baa bonds rose from 7·78 to 7·97 and 8·39 in the same months respectively. For bond yields, these rises were large and the absolute level of yields was high. Meanwhile on the stock market, industrials were also falling. The peak was reached as early as October, 1919, at 82·5, and by February, prices had fallen to 68·8. After a slight recovery a further relapse took place and in December the index stands at 51·7.<sup>1</sup>

9. We have now reviewed the causes of the downturn and our conclusions may be summarized. The two main causes of the boom, government borrowing and foreign trade, were exhausted in 1920, and only a large and sudden increase in other forms of investment could have prevented a collapse. This, however, did not occur, in spite of the technical opportunities which were no doubt fairly plentiful,

<sup>1</sup> Cf. *Common Stock Indices* (Cowles Commission), p. 3.

because the general situation had become unfavourable for an increase in private investment. Expectations were inelastic, labour scarcity held up the expansion of the consumers' goods industries and wage-rates were rising steeply and discouraging long-term investment. Finally, there was a rise in bond yields and although the evidence does not support the view that the downturn was simply, or even mainly, the consequence of low security prices, the latter must be regarded as one factor which contributed to the decline.

## THE POST-WAR SLUMP AND RECOVERY

THE slump which followed the post-war boom was short and severe. The index of industrial production and the index of factory production fell from 95 and 96, respectively, in February, 1920, to a low trough of 64 and 63, respectively, in March and April, 1921. Employment dropped from 116 in March, 1920, to 80 in July, 1921, but factory pay-rolls fell even more steeply from 125 in June, 1920, to 72 in July, 1921, and then after a slight recovery to 70 in January, 1922. The fall in prices was enormous. In May, 1920, the index stood at 167.2, but by January, 1922, it had dropped to only 91.4, a fall of 45 per cent.

There were signs of recovery in the second half of 1921. In May, industrial production began to rise, and the index had gained six points by December, while manufacturing production showed an advance of seven points. In the spring of 1922, recovery became more general. Prices, employment, pay-rolls and bank debits all began to rise, and within two years of the collapse the American economy had definitely entered on the upward phase of a new trade cycle. In short, there was a steep cumulative downswing, but no depression.

The recovery seems to conform, in a remarkable degree, to the standard descriptions of the neo-classical school. Costs were sharply reduced, commodity stocks were cut down, debts were liquidated, and eight per cent of the firms in operation in 1919 had disappeared by 1921.<sup>1</sup> "The process of readjustment" was ruthlessly carried out, and, after "the grim necessity of deflation" had been patiently endured, the American people enjoyed the reward for their suffering and determination, in the form of a rapid and sustained recovery. In the 'thirties, on the other hand, when the deflation was less thorough and less swift, and "counsel was darkened by the advocates of high wages and government spending," the depression dragged on from year to year and seemed to be incurable. For the austere economic moralist, the contrast is an admirable one. Let us, however, look more closely at the facts.

1. The political atmosphere in 1921 was very different from that of the previous years. The election of Harding, with his McKinley carnation and his pledge to bring the country "back to normalcy," was an encouragement. The Red scare was almost at an end and

<sup>1</sup> Schumpeter, *op. cit.*, p. 787.

labour was becoming extremely docile. In the words of Mr. F. L. Allen: "By 1921 the A.F. of L. leaders were leaning over backwards in their effort to appear as conservative as Judge Gary."<sup>1</sup> Radicalism had suffered a heavy blow and "the dangerous, idealistic Wilson" had been replaced by a hundred-per-cent American, under whose leadership the great days of American enterprise were bound to return. Political changes of this kind are one of the many intangible facts which must not be ignored in a study of the trade cycle simply because their importance cannot be measured.

When the more concrete consequences of government action are examined the situation seems to have been favourable, though from the unorthodox point of view. It is true that there was no question of fostering recovery by increased government investment, financed from a deficit. On the contrary, the Federal debt was reduced by some \$322 million in the fiscal year from 30th June, 1920, to 30th June, 1921. This deflationary policy, which had been partly responsible for the collapse, was thus continued during the depression, but—and this is a fact which has usually been overlooked—the scale of liquidation was reduced from over \$1 billion between 1919–20 to about one-third of that amount between 1920–21.

Account must also be taken of local as well as Federal policy. Debts of all government bodies rose by \$545 million over the calendar year 1921, as compared with a fall of \$600 million in 1920, and this relaxation of deflationary policy was twice as great as that which occurred between 1929–30.<sup>2</sup> It is true that in 1923 government debts fell once more, whereas in 1931 and 1932 the rise continued; but the financial policy at the *beginning* of a depression is of peculiar strategic importance and it cannot be denied that the more rapid recovery in 1921 may have owed a little to this unnoticed and quite unorthodox aspect of the situation.

2. There was a sharp fall in the propensity to save during the depression. The percentage of gross national income consumed rose from 77.0 per cent in 1920 to 82.7 per cent in 1921 and 80.2 in 1922. No adequate estimates of household savings are available, but gross corporate savings of businesses declined from \$13,652 millions in 1920, to \$9,892 million and \$7,737 million for the next two years respectively. Total savings of both business concerns and government agencies fell from \$15,780 million to \$10,971 and \$9,145 million for the same years, respectively.<sup>3</sup> According to our theoretical conclusions,

<sup>1</sup> *Only Yesterday*, p. 109.

<sup>2</sup> Kuznets, *National Income and its Composition*, 1919–38, p. 814.

<sup>3</sup> Kuznets, *National Income and Capital Formation*. 1919–35.



this reduced propensity to save must have been an important cause of the revival.

The recession, however, did not continue to the point where net investment is zero, and there was no long period of capital consumption similar to that which took place in the 'thirties. Net capital formation amounted to 36.4 per cent of gross total investment in 1919, 28.3 per cent in 1920, and only 11.2 per cent in 1921. By 1922, however, it had risen to 19.6 per cent, and in 1923 it was 31.2 per cent. These figures are in sharp contrast with those for the great depression of the next decade, when the percentage was negative for five years, and amounted, in 1932, to no less than *minus* 53 per cent.<sup>1</sup> We must therefore attempt to find an explanation of the attractiveness of new investment after the post-war boom as compared with the Great Depression.

3. The yield on U.S. government bonds dropped from 5.32 per cent in 1920 to 5.09 per cent in 1921 and 4.30 per cent in 1922. It may seem that this decline calls for a modification of the belief that the long-term rate does not fluctuate, but it must be remembered that a major revision of expectations had taken place. There had been a fall in the short-term rate, which we shall discuss below, but more important was the consciousness that the whole monetary situation had changed with the ending of the war and the post-war deflation. The period of war finance was definitely at an end and it was believed that an era of cheap money could be confidently anticipated. The whole basis of speculation was therefore altered and a relatively sharp decline in the yield was permitted. In so far as the policy of active debt reduction contributed to this change in expectations, it was successful in reducing the long-term rate of interest.<sup>2</sup> It still remains, however, to assess the importance of these developments for industry.

In the first place it must be emphasized that U.S. government bond yield decreased by only 0.23 per cent between 1920-21 and the effect of this change on producers' plans must have been slight. Moreover, between 1929-30 the yield fell by 0.3 per cent. In the former case, it is true, the fall continued in subsequent years; in the latter case it did not. But recovery began, not in 1922, when the total decline since 1920 amounted to 1.02 per cent, but in 1921. If the fall in the long-term rate was the crucial factor, why, it must be asked, did a fall of

<sup>1</sup> Cf. below, Ch. XVII.

<sup>2</sup> So long as speculators are active, a reduction in government debt will have little or no *direct* effect on security prices, for the latter will be stabilized with respect to short-term rates. Government policy may, however, have an *indirect* effect by changing liquidity preference in our sense of the term. Cf. Ch. II.

2.03 per cent prove effective in 1921, while a fall of 0.32 per cent proved ineffective in 1930? The yield on Moody's Aaa bonds only dropped 0.16 per cent between 1920-21, while the yield on Baa bonds actually rose by 0.15 per cent and share prices dropped from 66.1 to 51.6.<sup>1</sup> The dates of the turning-points in production must be recalled. The indices for all industrial production and factory output, respectively, started to rise about the middle of the year. According to Schumpeter, "the situation began to stabilize itself in April, 1921," and "deep depression was over by December, 1921."<sup>2</sup> In several industries, to be studied below, a rapid expansion had already begun in the first half of the year. Yet the yield on Baa bonds stood at about 8.5 per cent till September, 1921, and by January of the new year it had only fallen to 7.7 per cent. The yield on Aaa bonds remained at over 6 per cent till August, and was about 5.3 per cent in January, while share prices rose some 10 points during the same period. We must conclude that these changes can be regarded only as a secondary factor. They strengthened the expansion, especially during 1922, but the expansion itself had begun already for independent reasons, before any appreciable rise in prices had taken place.

4. The Federal reserve banks pursued at first a rather cautious policy. Holdings of securities, which had always exceeded \$300 million for each month of 1920, only reached that figure on two occasions in 1921. The average re-discount rate had been allowed to rise, in face of the general collapse of industry, from 4.90 per cent in January, 1920, to 6.4 per cent in January, 1921, and was not brought down to 5 per cent once more till the end of the year. A very different policy from that followed in 1930! There were, however, large importations of gold, which for some time were to reduce considerably the importance of reserve bank credit. Gold had been exported from May, 1919, till April, 1920, and further exportations took place in July and August. But from September 1920, gold began to flow inwards and within a year \$663 million had been imported.

The net effect was a decline in member banks' discounts of some \$1.3 billion during the whole of 1921 and \$0.5 billion in the next twelve months. The banks were clearly using their gold to repay their indebtedness at the Reserve Banks, in the orthodox manner.<sup>3</sup>

<sup>1</sup> It is interesting to recall, in the light of these facts, the extraordinary assurance with which so many theorists assume that "the rate of interest" is high during "the boom," and low during "the depression," without explaining what they mean either by "the rate of interest," or by "boom" and "depression."

<sup>2</sup> *Op. cit.*, p. 787.

<sup>3</sup> Cf. Burgess: *The Reserve Banks and the Money Market*, p. 275 (1936 edition).

At the same time, market rates were reduced. Between January and December, 1921, the rate on prime commercial paper fell from 7.81 to 5.12 per cent, time rate from 6.54 to 5.12 per cent, and call rate from 6.69 to 5.12 per cent. This rapid decline was largely responsible for the change in speculators' expectations, and the consequent fall in the yield. Can it, however, be regarded as an important cause of the recovery? It seems, *prima facie*, that the whole course of events could be most convincingly explained with Mr. Hawtrey's theory. In 1920, short-term rates had been raised, and a slump had occurred; in the following year, the usual decline in rates took place and recovery began. The explanation seems to be completely satisfactory, but for two considerations. First, we may doubt whether the actual changes in the short-term rate were a sufficiently powerful force to throw the whole economy into depression and then raise it once more to a high level of prosperity. Second, and this objection is surely fatal—similar reductions, carried out with greater swiftness, in 1929–30, were incapable of bringing the depression to an end. We must, therefore, turn our attention to those mysterious real forces which the more rigid members of the monetary school would tend to ignore.

5. The index of hourly earnings in manufacturing industry fell from a plateau at 122.9 for September–October, 1920, to 88.4 for July, 1921.<sup>1</sup> The yearly average for 1921 is only 96.9 as compared with 112.0 for 1920, a fall of 13.5 per cent. The severity of this deflation can be better appreciated when it is recalled that the average for 1930 is about one point below that for 1929. Wage-cost per unit<sup>2</sup> in manufacturing industry had risen very sharply during the boom, but the fall during the slump was even more steep. The index dropped from 130.9 in 1920 to 108.2 in 1921 and only 92.5 in 1922, as the combined results of falling money-wages and rising productivity. This beneficial effect was in part offset by the rise in the burden of debt due to the deflation of wages and prices, but the net result was probably beneficial.

The fall in wage-rates in industries producing durable goods was certainly great, and it is in marked contrast with the stickiness of wages in 1930. In foundries and machine shops, the monthly index of hourly rates fell from 112.9 in September, 1920, to 86.4 in July, 1922. The average is 111.7 for 1920; 97.6 for 1921; and 89.5 for 1922. In the construction industry similar reductions were made. The index drops from 103.9 in September, 1920, to 91.3 in April, 1921, and the yearly averages for 1920, 1921, and

<sup>1</sup> *Wages, Hours, and Employment in the U.S.A., 1919–36*, National Industrial Conference Board (1923 = 100).

<sup>2</sup> Bell, *op. cit.*

1922 respectively are 103·8, 97·7, and 92·3. The same was true for other industries of this type. In all cases, there was a steep reduction in rates.

The deflation, however, can have had beneficial results in these industries only if expectations were favourable, and it seems that at this period the necessary conditions were fulfilled. First, it must be noted that one of the worst evils of a policy of wage-reductions, namely a slowly sagging wage-level, was less serious than is usually the case. Deflation was swift and drastic and in the middle of 1921, entrepreneurs had good reason to expect that the bottom had been reached and that little would be gained by postponing their orders. Secondly, expectations of future receipts were favourable in the important industries. This was true of the construction industry, for example, for rents were rising at the same time as costs were falling. It was also true of the automobile and certain other industries, mentioned below. Now it is perfectly obvious that the state of expectations, on which the success or failure of wage policy entirely depends, is in itself partly determined by the opportunities for technical progress. There can be little doubt but that, for this reason, wage-cuts were more successful in 1920-21 than similar cuts could possibly have been in 1930-31. We must conclude, therefore, that wage policy was one cause of the revival, but its success was partly due to technical progress, which made expectations favourable in the industries producing durable goods.

6. There is plenty of evidence to show that innovations played an important part in bringing about the increase in investment. There were several large industries in which the methods of production and the quality of the product were changing and the volume of output expanding at an enormous rate. Investment in these industries helped to check the fall in production, and by their own swift development they encouraged revival elsewhere. Notable among them was the petroleum industry, which was entering, at this time, upon the violent speculative boom, later to receive so much attention in connection with the Harding scandal. The annual index of production records no decline at all during the slump, and between 1920 and 1923 it advanced from 64 to 86, while total production in manufacturing industry only rose by 14 points. The automobile industry had not escaped the depression, but it was one of the first to recover. The index reached its low point at 25 in January, 1921, and then began to rise. By December, 1922, it stood at 93. The increase in the annual index between 1920 and 1923 was no less than 46 points. The textile industry, which had suffered very severely in 1920, started to recover

about the same time, and a rapid increase in output took place. The relative changes in the different industrial groups can be seen from the following table.

TABLE I  
PRODUCTION

	Rise in Index between 1920 and 1923
Automobiles . . . . .	46
Cement, brick and glass . . . . .	29
Petroleum . . . . .	22
Textiles . . . . .	21
Lumber . . . . .	20
Non-ferrous metals . . . . .	16
Food products . . . . .	15
ALL MANUFACTURING INDUSTRY	14
Leather and products . . . . .	13
Tobacco . . . . .	9
Iron and steel . . . . .	6

Source: *Report of the Federal Reserve Board*, 1926, pp. 202-3.

Since different industries are affected in a different degree from one phase of the trade cycle to another, as a result of differences in the durability of their products, it is better to compare figures for the boom years 1920 and 1923, rather than the increases in production during the revival. The estimates presented in the table support the contention that the recovery was due, in a large measure, to the great relative progress of a few industrial groups. It was also due, no doubt, to the number of innovations introduced throughout industry as a whole.

Outside the manufacturing group, the electrical and construction industries were enjoying rising prosperity. Although the great development in electrical power production was to occur later in the decade, there was a remarkable increase even at this time. Production fell from 3,823 million kilowatts for January, 1920, to 3,172 for February, 1921, but by August of the latter year it had risen to 3,420 million, and by December to 3,820 million. During 1922, the expansion continued till by December it had exceeded the 1920 peak by about a quarter and stood at 4,605 million kilowatts.

The construction boom was also beginning to get under way. The index of construction contracts awarded had fallen from 91 in January, 1920, to 43 in January, 1921, but in March it began to move upwards and in December it stood at 66. According to Professor Kuznets's estimates, total construction rose from \$4,886 million in

1920 to \$6,170 million in 1921 and \$8,790 million in 1922. The vital importance of this increase in bringing about the recovery is abundantly clear. If there had been the same growth in construction in the 'thirties, the country might well have been spared the misery of a long drawn out depression. In part, this rise was due to cost deflation and in part to a rise in rents. The index of construction costs fell 36 points between 1920-22, and this was the more important factor, but the rent index also rose by 26 points *in spite of the fall in national income*. There was no similar phenomenon during the next depression.

7. Foreign trade did not regain the heights of the post-war boom. The merchandise balance continued to fall, and for 1921 and 1922 the figures are \$1,976 and \$719 million respectively as compared with \$4,016 million in 1919 and \$2,949 million in 1920. The great boom was definitely coming to an end and trade grew increasingly difficult as the problems of Central Europe grew more acute. It is true that, even in 1921, the balance was very large in spite of the world depression and although it was decreasing it still constituted one important section of total investment which was, in part at least, independent of the internal cumulative downswing. Nevertheless the decline in 1921-22 was enormous and the power of the other factors making for recovery may be judged from the fact that, in spite of depressed foreign trade, a swift recovery began. There was no comparable fall in the foreign balance between 1929-30 or even between 1929-32.

-8. The causes of the revival have now been reviewed and it would seem that the most important feature was technical progress, assisted by wage deflation. Credit policy was probably of minor importance as a positive factor, although the elasticity of funds allowed a revival, due primarily to other causes, to take place. These conclusions will be referred to at a later stage when we discuss the great depression of the 'thirties.

## CHAPTER XIII

### GENERAL FEATURES OF THE PERIOD 1922-29

THE post-war boom is of the greatest interest for the theory of inflation, but business was so profoundly affected by the process of adjustment to a peace-time economy and by such "external" factors as foreign trade and government finance that the conclusions derived from a study of these years must be treated with care. During the subsequent years, 1922-29, these special problems had largely disappeared, and a study of events is therefore more useful in attempting to estimate the interpretative value of the theories reviewed in Part I. It is well, however, to preface a detailed discussion of the time-series with a brief reference to certain general tendencies, for in some respects the whole period may be regarded as a unity. It was characterized throughout by a high degree of stability and progress. The recessions which occurred in 1923-24 and 1926-27 were so slight that they are scarcely recorded at all by a three-year moving average of national income, and for seven years American prosperity was maintained. So much for the many trade cycle theories which assume an inevitably rapid reversal of boom and slump. Even Keynes, with American experience before his eyes, held that prosperity usually came to an abrupt end without any plateau comparable to the long trough of the depression.

1. The feature which would lead one to look for an underconsumptionist explanation of the events of 1929 is the enormous increase in national well-being. The total gross product, expressed in 1929 dollars, rose from \$68 billion in 1922 to \$94 billion in 1929, a rise of nearly 40 per cent over a short period of seven years.<sup>1</sup> According to Professor Mills's estimate, production grew at a cumulative rate of 3·8 per cent per annum, and since population was only growing at 1·4 per cent per annum, output per head was rising at 2·4 per cent.<sup>2</sup> Professor Kuznets had estimated changes in net income per person gainfully employed and per consuming unit—a statistical device to take account of changes in the age and sex distribution of the population—and he had found that for both these units income rose by 34 per cent between 1921 and 1929.<sup>3</sup> Surely, if the assumption of a falling propensity to consume as income rises is at all realistic, it will be fully validated during this great phase of American development.

<sup>1</sup> Kuznets, *National Income and Capital Formation*, Table I.

<sup>2</sup> *Economic Tendencies in the U.S.A.*, p. 530. His production estimate excludes building.

<sup>3</sup> *Op. cit.*, p. 11.

Yet the facts do not appear to support this assumption at all. During these seven years, in spite of the enormous increase in wealth, there was absolutely no tendency for consumption to become a smaller proportion of national income. If we examine<sup>1</sup> Professor Kuznets's three-year moving average of consumers' outlay, in order to exclude certain year-to-year fluctuations which will be considered in a moment, we find that the propensity to consume remained remarkably stable. This simple and easily available, though much neglected, fact casts serious doubt upon the beliefs of the underconsumptionist school.

It is a curious paradox, however, that this long-period stability of the proportion consumed was accompanied by marked fluctuations in the short period. The annual figures for consumers' outlay as a percentage of gross national income, in place of the three-year average used above, will be found in the table below,<sup>2</sup> and they record quite definite changes in the proportion consumed during each cycle; there was always a decline during the upswing and an increase during the downswing, and it is still possible that in these fluctuations may lie an explanation of the turning-points. But since the propensity to consume did not tend to decline over the period as a whole, when real income rose by 30 per cent *per capita*, how could the far smaller rise in real income during each minor upswing bring about a change? Why, in short, were the cyclical changes unaccompanied by a declining trend? Clearly these events cannot be explained at all if we assume that the propensity to consume is solely determined by the level of *per capita* real income, and some additional factors must be discovered.

In attempting to account for this curious combination of long-period stability and short-period instability in the proportion consumed, two different sets of assumptions may be employed. First, the psychological basis of the over-saving school may be challenged by denying that even a thirty per cent increase in wealth will change the spending

<sup>1</sup> It is true that these figures are *ex post*, whereas the causal factors are the *ex ante* quantities. The latter, however, cannot be measured and we must therefore reason, with some inaccuracy, on the basis of the *ex post* calculations, just as, in estimating the multiplier, *ex post* investment must be used. But it is at least possible to know the direction in which *ex post* consumption will diverge from *ex ante* consumption. During an upswing, the former will fall below the latter, since *ex ante* saving is below *ex ante* investment, and the two must be equated, *ex post facto*, by involuntary saving or involuntary changes in stocks. During a downswing, the reverse will be the case. (Cf. above, Part I, Ch. IV.) It follows that the amplitude of fluctuations in *ex post* consumption will be less than the amplitude of fluctuations in *ex ante* consumption. But this modification only strengthens the conclusion reached above, since it implies that *ex ante* consumption exceeded *ex post* during the great period of expansion in the U.S.A.

<sup>2</sup> The annual figures are subject to a wider margin of error than the three-year moving average, and may be somewhat unreliable for certain years.



habits of the individual; secondly, the usual psychological belief may be retained and we can then look for offsetting factors which were operative over the period as a whole but which did not fluctuate in a cyclical manner. The first of these assumptions accounts for the long-period stability but the short-period changes are now unexplained. It is possible, however, that the latter were due to cyclical shifts in the distribution of income, and this line of reasoning is in the underconsumptionist tradition. Now profits tend to become a larger proportion of income in good years and the marginal propensity to save out of profits is very high. The shift to profits may not be exclusively, or even mainly, at the expense of the working class but savings are likely to increase nevertheless. On the other hand, there may be no long-run tendency for profits to increase relatively to other incomes over a number of cycles, whether Kitchins or Juglars. Thus cyclical increases in the proportion of income consumed may occur during each expansion but there may not be any trend increase in spite of rising real income if, over a longer period, there is no sustained shift to profits.

Anyhow, the assumption that changes in real income were responsible for the short-period variations in the propensity to consume can still be retained and the long-period stability can be explained by taking account of the time-lag necessary for a change in consumers' habits. During a short cycle it is natural that consumers should save a larger proportion of their incomes in fat years and a smaller proportion in lean years, for they will not be able to adjust their standard of living immediately to changes in income. A large proportion of their total outlay involves long-period contracts which cannot be changed immediately without great risk. A family will not, as a rule, move into a larger house as the result of one year's prosperity, and when it is recalled what a large part of luxury expenditure is usually devoted to durable or semi-durable goods, which require a heavy initial outlay, the force of this consideration can be better appreciated. On the other hand, over a period longer than the 40 month Kitchin,<sup>1</sup> consumers will be more inclined to make an upward adjustment in their expenditure, and it is not therefore so surprising to find that over the 'twenties as a whole the proportion of income consumed was fairly stable, in spite of the short-term variations.

There were also two special factors which favoured a high level of consumption in the long period, viz. the growth of consumers' credits and the stock exchange boom. (a) Between 1919-29 consumers' debts rose by \$4 billion.<sup>2</sup> For 23,779 retail stores, with total sales of

<sup>1</sup> Cf. p. 91, above.

<sup>2</sup> Cf. Mills, *Prices in Recession and Recovery*, p. 67.

over \$4.7 billion a year, 9.2 per cent of total sales were on the instalment system, 32.2 per cent on open credit and only 58.6 per cent for cash. The great boom in the automobile industry was partly due to the fact that 50 per cent of the cars sold were paid for by instalments. These figures indicate the quantitative importance of consumers' credits. (b) It is now customary to lay great stress on the importance of expenditure on luxury goods from capital gains made on the stock exchange, and it is possible that expenditure of this sort counteracted the effect of rising real income. It is true that this factor might have been expected to smooth out the cyclical fluctuations as well as the long-period fluctuations, for it must be borne in mind that the great bull market was little affected in any marked degree by the fluctuations in income during the Kitchins.

TABLE II

Year	Description of Year	(1) Gross National Income	(2) Consumers' Outlay	(3) (2) as Percentage of (1)
		(\$ billions)	(\$ billions)	
1919	Boom . . . . .	64.0	48.4	76.8
1920	Boom and collapse . . .	66.9	51.6	77.3
1921	Downswing and slight recovery . .	62.5	51.8	83.0
1922	Full recovery and upswing . .	68.5	55.1	80.4
1923	Boom and recession . . .	77.4	60.2	77.7
1924	Downswing and recovery . .	78.3	63.7	81.2
1925	Upswing . . . . .	81.8	62.9	77.0
1926	Prosperity, with slight recession in second half . . .	86.4	67.9	78.5
1927	Slight recovery, then recession . .	85.8	67.2	78.1
1928	Upswing . . . . .	90.2	72.3	80.2
1929	Boom and collapse . . .	93.6	73.3	78.3

Based on statistics in Kuznets's *National Income and Capital Formation*, 1919-35. Appendix Table VIII. (All estimates have been adjusted and are in 1929 prices.)

In conclusion it would appear that the facts just considered cast serious doubt on the underconsumptionist theory in so far as it refers to a period of, say, ten years, but its importance has been in no way diminished as an explanation of changes in the inducement to invest during periods so short that consumers' habits have not been adjusted to increasing wealth. It may also hold over much longer periods than ten years when a fall in the rate of growth of population may cause such an increase in *per capita* income that, even after the period

necessary for adjustment has elapsed, consumers will not absorb the increasing flow of luxuries by a sufficient expansion of their total outlay.

2. The strategic factor in underconsumptionist theory is the rate of growth of consumption. The criticism in the last section has not, in any way, excluded this factor so far as the short cycles are concerned and we shall now direct our attention to it. The changes in the rate of growth are expressed in percentages in the following table<sup>1</sup>—

TABLE III			
THE RATE OF CHANGE OF CONSUMPTION (STABLE VALUES)			
1921-22 .	. + 6.4	1925-26 .	. + 7.9
1922-23 .	. + 9.3	1926-27 .	. - 1.0
1923-24 .	. + 5.8	1927-28 .	. + 7.4
1924-25 .	. - 1.2	1928-29 .	. + 1.5

The figures lend support to the theory that there was insufficient spending in 1929. The fall in the rate of growth from 7.4 per cent, between 1927-28, to a mere 1.5 per cent, between 1928-29 should, according to the theory of the relation, have led to a collapse, unless its effect was offset by other factors.<sup>2</sup> Moreover, 1929 was a year of great prosperity and consumption was inflated by expenditure from capital gains made on the stock exchange, so the fall in the rate of growth of consumption can be regarded as quite an autonomous event, in the sense that it was not merely the reflection of a decline in income. Whereas consumers' outlay rose by only 1.5 per cent, between 1928-29 gross national income rose by 3.8 per cent. An underconsumptionist explanation of the collapse may therefore appear to be plausible.

The evidence, however, is not really satisfactory, for a greater fall in the rate of growth of consumption took place between 1924-25; yet 1925 was a year of prosperity, no collapse occurred, and in 1926 record levels were reached for both consumption and production. Moreover, some explanation must be found for the speedy recoveries

<sup>1</sup> The estimates for consumers' outlay include expenditure on durable consumers' goods, and are not, therefore, quite accurate as indicators of consumers' behaviour. It is, however, impossible to get any estimate of the demand for the *services* of durable consumers' goods, and it is unsatisfactory to take the figures for the production of transient consumers' goods alone, for there was a relative shift in demand in favour of the former. The more comprehensive figures are quite appropriate in tracing the connection between the *production* of consumers' goods and the production of producers' goods, but they make the *behaviour of consumers* appear to be rather more erratic than was the case.

<sup>2</sup> It may be objected that fluctuations of about 6 per cent in consumers' outlay are unimportant, but, in 1922, this percentage would have been equivalent to some \$3.3 billion, or, in 1929, to \$4.4 billion, and these sums are quite appreciable.

in 1924 and 1927. The annual figures record a decline in the rate of growth between 1923-24, while the monthly figures for department store sales show that an absolute decline took place between the middle of the former and the middle of the latter year. Even on the annual estimates, the rate of growth drops from 7.9 per cent in 1926 to -1.0 in 1927. It would seem, therefore, that the evidence proves too much. It is true that we have found one explanation of the collapse in 1929, but from the same evidence we should expect to find that the whole decade was characterized by violent cyclical instability, and this, of course, was not the case. If an attempt were made to sketch the course of events with the aid of nothing more than the figures for consumers' outlay and the theory of the relation, the picture would bear remarkably little resemblance to what actually occurred. It would be found that 1925, a year of prosperity, should have been a year of collapse and that the minor downswings of 1924 and 1927 should have been no less disastrous than that of 1929. In these respects our account would resemble the many rather vague under-consumptionist analyses of the period, the authors of which apparently fail to perceive that, if there was a marked slowing up in the rate of growth of consumption, if capitalism was failing to give to the working class an adequate share in the fruits of progress, and if these dangerous tendencies were evident over the period as a whole, the great increase in wealth which actually took place is wholly mysterious.

The inadequacy of the acceleration principle as a complete explanation of what actually happened has now been demonstrated, but the theory itself is logically sound and must not be thrown aside. On the contrary, we shall retain that theory and look for certain offsetting factors, which made the level of investment independent, in a large measure, of changes in the rate of growth of consumption. In this way, we shall attempt to explain the stability of the years 1922-29.

3. In estimating the importance of changes in the rate of growth of consumption, we must bear in mind that new investment by business concerns induced by changes in consumption forms only a part of total gross investment. On the next page is a table based on material taken from Professor Kuznets's *National Income and Capital Formation*, which makes clear the relative magnitudes involved in the composition of gross investment.

(a) It is interesting to notice that the gross investment of business enterprises constituted, on an average, only about two-thirds of total gross investment. The unallocable items, including changes in claims against foreigners, never regained their immediate post-war importance; but, on the other hand, the expenditure of public agencies

TABLE IV  
GROSS CAPITAL FORMATION BY TYPE OF USER, 1919-1929  
(1929 Prices; Percentages)

Year	Consumers' Residential Construction	Business				Public Agencies			Un-allocable Claims Against Foreigners	Total Gross Investment
		(a) Producers Durable	(b) Business Construction	(c) Business Inventories	Total	(a) Public Construction	(b) Stocks of Gold and Silver	Total		
1919	10.7	29.8	17.9	18.8	66.6	9.3	- 1.3	7.9	14.7	100
1920	7.4	31.0	16.2	28.2	75.4	8.3	- 0.3	8.0	9.1	100
1921	20.8	30.8	20.7	- 1.3	50.2	16.1	7.2	23.2	5.7	100
1922	28.3	28.8	22.2	1.9	52.8	15.1	2.2	17.3	1.6	100
1923	24.7	29.4	18.5	16.2	64.1	9.7	2.0	11.7	0.4	100
1924	31.5	33.2	23.4	- 6.7	49.9	13.9	1.8	15.7	2.9	100
1925	27.6	28.4	21.3	8.7	58.4	12.4	- 0.5	11.9	2.1	100
1926	25.7	31.2	23.4	6.5	61.1	12.5	0.5	13.0	0.2	100
1927	24.3	32.3	24.1	2.4	58.8	14.2	- 0.6	13.6	3.3	100
1928	23.7	33.8	24.6	- 2.0	56.4	15.9	- 1.3	14.6	5.3	100
1929	14.8	34.0	22.6	11.9	68.5	14.4	0.7	15.2	1.5	100

Based on Kuznets's estimates, *National Income and Capital Formation 1919-35*, p. 40.

was of considerable significance even in this heyday of *laissez-faire*. The largest item, however, apart from changes in business investment, is residential construction, and the paradox that fluctuations in consumers' outlay did not create wider fluctuations in income before 1929 is explained, in part at least, by the fact that these figures for consumption expenditure are incomplete; they do not adequately reflect one of the most vital parts of total demand—the demand for housing accommodation.

The corresponding form of investment—the production of houses—amounted on an average to about 25 per cent of total gross investment between 1922-29.<sup>1</sup> Towards the end of the decade the rate of growth of demand began to decline and the rent index fell by 13 points between 1925 and 1929. This index, moreover, is not altogether satisfactory as a measure of the demand for houses, since rents are somewhat sticky and allowance must be made for a growing surplus of empty flats and houses. Thus the application of the acceleration principle is somewhat wider than Dr. Kuznets's figures for consumers' outlay would suggest, but, on the other hand, it must be recalled that in dealing with residential building we are concerned with a factor which is, in a large measure, independent of the trade cycle. The slump in the 'thirties was extraordinarily severe, partly because it coincided with a downturn in the somewhat longer cycles of residential construction.<sup>2</sup>

Cycles in building activity would still take place in a world where cumulative cyclical fluctuations in income were unknown.<sup>3</sup> Changes in the rate of growth of population would in themselves be sufficient to set up cycles in building activity, and internal migration will have a similar effect. If, moreover, the erection of new buildings has not taken place at an even rate in the past, then, on the assumption that the lives of houses are fairly well concentrated round the mode, replacement cycles will take place in the future.<sup>4</sup> It is clear that, in

<sup>1</sup> Kuznets, *op. cit.*, p. 40.

<sup>2</sup> Cf. J. R. Riggelman, "Building Cycles in the U.S., 1875-1932," *J. of Amer. Stat. Ass.*, 1932, p. 174; A. F. Burns, "Long Cycles in Residential Construction," in *Essays in Honour of W. C. Mitchell*; C. F. Roos, *Dynamic Economics*, Ch. VI; J. Tinbergen, *Testing Business Cycle Theories*; W. H. Newman, *The Building Industry and Business Cycles*; C. D. Long, "Long Cycles in the Building Industry," *Quarterly Journal of Economics*, 1939, pp. 371-403.

<sup>3</sup> In such a world, where productivity and thrift determined the rate of interest, the changes in the demand for housing would, of course, be offset by corresponding changes in savings or other forms of investment. But the rate is otherwise determined and these changes can therefore disturb the general level of effective demand.

<sup>4</sup> Cf. J. E. Bain, "The Life of Equipment and Reinvestment Cycles," *Review of Economic Statistics*, 1939, and Arthur F. Burns, "Long Cycles in Residential Construction," in *Essays in Honour of Wesley C. Mitchell*.

a large measure, these factors are unaffected by the business cycle. Population changes are very largely so, and internal migration on a great scale is not likely to be induced by a single upswing or downswing. It is true, of course, that building activity is not completely determined by these autonomous factors. The rate of replacement is not solely dependent upon the physical durability of the structures but also upon the level of real income and cyclical changes in construction costs or the availability of credit. Nevertheless, the location of the peak of a great building boom in the middle of the 'twenties must be regarded as largely an independent variable,<sup>1</sup> capable of explaining in part the sustained prosperity of these years.

"The shortage of building resulting from the dislocation of construction programmes during the World War led to a programme of construction in 1919 and 1920 which was speeded up in the face of cost inflation."<sup>2</sup> Rents were rising in 1920, but the rise in costs and the general slump caused, as we have seen, the postponement of new projects and the curves of construction contracts and building permits turned downwards. During the depression, however, rents continued to rise, and at the same time there was a sharp fall in costs.<sup>3</sup> The composite weighted average of money wage-rates in the construction industry in 23 cities fell from 103·8 in the last five months of 1920, to an average of 97·7 in 1921 and 92·3 in 1922.<sup>4</sup> The consequent increase in construction was one of the main causes of the revival. Total construction increased from \$4,886 million in 1920 to \$6,170 million in 1921, and \$8,790 million in 1922. This was accompanied, however, by a relative change in the composition of the total. Business construction is more closely correlated, as we should expect, with the general level of activity, and a decline took place in 1921. But the other forms of building—residential, public utility, and public works—continued to increase. A similar development occurred in 1923–24. The first type of building fell, while the last three steadily increased. Indeed, throughout the whole decade, these three seem to obey laws of their own and to be virtually unaffected by short-period fluctuations in income. Residential building reached its peak in 1925, at \$5 billion, and thus offset the fall in that year of the rate of growth of consumption. It then declined to \$3 billion in 1929, in spite of the concurrent increase in real income. This decline was more than offset till 1927,

<sup>1</sup> Mr. Tinbergen's econometric analysis tends to support this argument. Cf. *Testing Business Cycle Theories*, Vol. II.

<sup>2</sup> *Recent Economic Changes*, p. 224. Residential construction, however, was below the replacement level in both 1919 and 1930.

<sup>3</sup> Cf. Roos, *Dynamic Economics*, pp. 69–110.

<sup>4</sup> National Industrial Conference Board.

by the rising expenditure of public utilities and public authorities,<sup>1</sup> and only a slight fall in the total had taken place before 1929.

(b) So far we have been concerned with gross investment, and we have seen that the expenditure of business concerns on equipment and construction constituted only a part of the total. It is not, however, gross investment, but only net investment, which will be directly affected by changes in the rate of growth of consumption. The latter is expressed as a percentage of the former in the table below.

TABLE V

NET INVESTMENT OF BUSINESS ENTERPRISES IN FIXED  
EQUIPMENT AND CONSTRUCTION EXPRESSED AS A  
PERCENTAGE OF GROSS INVESTMENT

1922 . . .	14.8	1926 . . .	30.8
1923 . . .	28.0	1927 . . .	37.3
1924 . . .	28.3	1928 . . .	34.5
1925 . . .	34.9	1929 . . .	37.8

Based on Kuznets's estimates, *op. cit.*, pp. 40 and 48.

It is clear from a study of this table that the application of the theory of the relation must be still further restricted. Yet it would not be true to say that collapse was prevented in the crucial years by the rising volume of output for replacement. The proportion of the total which was due to new investment did not decline between 1923-24, and it rose quite sharply between 1924-25, when the rate of growth of consumption was still falling off. In 1926, on the other hand, it fell while the latter rose; and in 1927 it rose once more. For some reason even new investment by business concerns does not appear to have been closely correlated with the rate of growth of consumption, and a further restriction of the underconsumptionist hypothesis must be made.

(c) The facts suggest that a considerable part of new investment was intended to deepen the capital structure or to provide new types of consumers' goods, and total investment was to this extent independent of the rate of growth of total consumers' outlay. In short, innovations in technique offset in part the working of the acceleration principle and ensured a high degree of stable prosperity. The statistics show that mechanization proceeded at a rapid pace throughout the period. In spite of the enormous increase in output, employment actually declined between 1920-29, which is in itself an indication of the

<sup>1</sup> The importance, even in these years, of expenditure on construction by public authorities seems to have been overlooked by the apostles of free enterprise.



extent to which new methods were being adopted. As an additional measure, Professor Jerome has estimated the increase in horse-power per worker for the census years between 1919-29.<sup>1</sup> Between 1919-25, it rose from 3.25 to 4.27, an increase of 30 per cent, and by 1929 it had reached 4.86, an increase since 1919 of 50 per cent.

The indices of productivity also record a large increase in output per wage-earner, which was no doubt mainly due to technical progress and was therefore accompanied by a high level of investment—

TABLE VI  
PRODUCTIVITY PER WAGE-EARNER

Industry	1923	1929	Change
Manufacturing industry . . . .	93.7	121.6	+ 27.9
Electrical industry . . . . .	98.3	132.3	+ 34.0
Minerals . . . . .	90.0	127.4	+ 37.4
Railroads, Class I . . . . .	96.0	113.6	+ 17.6
Five manufacturing industries—			
Automobiles . . . . .	97.6	139.7	+ 42.1
Blast furnaces, steel works and rolling mills . . . . .	94.7	129.4	+ 34.7
Paper and pulp . . . . .	96.0	119.6	+ 23.6
Cotton textiles . . . . .	99.5	104.6	+ 5.1
Tobacco . . . . .	93.5	136.2	+ 42.7

Source: Bell, *op. cit.* Productivity is defined above, p. 107 n.

A study of relative changes in the fortunes of different industries affords some additional information, for it may be reasonably assumed that if some industries show a marked leadership during one period whereas during another period all industries progress at roughly the same rate, the former period will be more favourable for investment than the latter.<sup>2</sup> It may be objected that the average rate of change in industry as a whole may be so much larger in the second case that, although there is not the same disparity between different industries, innovations will be more important throughout the economy as a whole than they were in the former period of great relative change. It is, however, a fairly safe empirical generalization that when innovations are being made on an important scale, the development of some industries will far exceed the development of others. A rapid expansion of industry which is not marked by important relative changes is scarcely likely to occur. This argument is enormously strengthened

<sup>1</sup> *The Mechanization of Industry.*

<sup>2</sup> Cf. Chapter VII above.

when we include under the term "innovation" not merely changes in the cost of producing the same commodities, but also changes in tastes and the invention of new consumers' goods. It is clear that the scope of our inquiry will be unduly restricted if we confine our attention to changes in the given cost functions and ignore the appearance of entirely new functions which relate to new commodities, for in actual life innovations are usually complicated phenomena which include changes of both types. We must, moreover, take into account those changes in taste which are caused by a rise or fall in income, population, and so on. In all these cases investment is likely to be increased. First, when new methods are introduced as the result of an invention it is probable that the degree of capital intensity will be increased. Secondly, although in the case of new commodities or a shift in taste there is less ground for supposing that the means of production will become more capitalistic, it is virtually certain that *gross* investment will be increased, because the output of new machines for the industries favoured by the change in demand, or brought into being by the invention of a new commodity, will exceed the production for replacement which would have been necessary in the relatively depressed industries if the change had not occurred.

The table on p. 126 indicates the enormous differences in the development of main manufacturing groups.<sup>1</sup> The rise in output for all manufacturing industry was 18 points, but there was a very wide dispersion around this average. While some industries—notably petroleum and automobiles—were leaping ahead, others—such as textiles and lumber—were in a state of semi-depression.

(d) In short, the expansion between 1919-29 was characterized, like so many expansions in the past, by the rise to maturity of a number of great industries, and in this fact we have a final explanation of the relative unimportance of changes in the rate of growth of consumers' demand. Indeed, the theory of the relation has been modified so much in order to take account of non-business investment, replacement

<sup>1</sup> The period, according to Professor Schumpeter's schemata, should have seen the economic system pass from a Kondratieff prosperity to a Kondratieff down-grade. "We should not," he writes, "expect to find fundamentally new things, but rather completing development on lines chalked out before and attended by strong increases in quantities, marked improvements in qualities, 'rationalization' all round, an indefinite variety of small innovations producing a wide variety of new specialities, the phenomenon which we have called conquest of new economic space. This is what we find. The electrical, chemical and automobile industries, together with their subsidiaries and all that directly or indirectly hinges upon them—the motor car, for instance is responsible for a great part of total post-war construction: roads, garages, gasoline stations, suburban residences—account for 90 per cent of the post-war changes in the industrial organism and for most of the increase in real income." (*Business Cycles*, pp. 753-4.)

TABLE VII  
INDEX NUMBERS OF INDUSTRIAL PRODUCTION

Grouping and Weighting	1923	1929.	Change
Petroleum refining (1·67) . . .	86	168	82
Rubber manufactures (1·41) . . .	86	135	49
Tobacco manufactures (1·02) . . .	96	134	38
Motor vehicles (5·39) . . .	102	135	33
Paper and printing (10·00) . . .	95	125	30
Iron and steel (20·64) . . .	105	130	25
ALL MANUFACTURES . . .	101	119	18
Textiles (18·38) . . .	105	115	10
Foodstuffs (9·05) . . .	99	97	- 2
Leather and products (3·62) . . .	110	105	- 5
Lumber (8·29) . . .	99	91	- 8

Source: *Federal Reserve Board Report for 1929*, p. 210. (Certain minor groups have been omitted; 1923-25 = 100.)

demand, and technical progress, that the usefulness of the theory may well be called in question.<sup>1</sup> It seems to emphasize the wrong variable and to divert attention from those that really matter. Many underconsumptionist explanations of the upper turning-point must be regarded as one-sided and misleading accounts of what actually happens, and a more comprehensive theory is required. It would, of course, be folly to ignore completely the theory of the relation, and concentrate all our attention on innovations. A fall in the rate of growth of consumption may, at times, be a supplementary factor which helps to bring an expansion to an end. We shall find that this was probably the case in 1929, when there was *no longer a compensating increase in other factors*. Furthermore, the theory of the relation is most useful in explaining what was happening to individual industries, notably building. The purpose of the present chapter has not been to discard the theory, but rather to estimate its relative importance.

<sup>1</sup> Since the above was written several years ago, I have become increasingly convinced that those theories which attempt to explain events by reference to changes in large aggregates, such as the level of consumers' outlay, are seriously defective. Cf. the authoritative criticism by A. F. Burns in his pamphlet, *Economic Research and the Keynesian Thinking of Our Times* (National Bureau of Economic Research).

#### CHAPTER XIV

### THE YEARS OF STEADY PROGRESS: I

THERE is a marked contrast between the violence of the post-war boom and the steady expansion which took place in 1922-23. Wholesale prices rose from 91.4 in January, 1922, to a new peak at 104.5 in March, 1923, but they were still well below the 1920 record of 167.2. Moreover, although the level of prices at the beginning of the post-war boom had been much above the level prevailing at the beginning of the 1923 boom, the rise in the former case was 30 per cent, in the latter only 14 per cent. The index of factory pay-rolls never regained the high plateau of 125 of the middle of 1920, and the cost of living index, when it reached its highest level in the latter part of 1923, was still some 20 points below its 1920 peak. Industrial production, on the other hand, had recovered as early as November, 1922, to the highest level reached in 1920, and stood some eleven points above this peak in the second quarter of 1923. The elasticity of the supply of consumers' goods, which is of major importance in determining whether or not a boom will be inflationary, was very much greater than it had been three years before. Mr. Leong's index was only 88.7 in January, 1920, but in March, 1923, it stood at 102.6.<sup>1</sup> Yet this increased volume of output was obtained with the use of a smaller labour force. The index of factory employment never returned to its 1920 peak during the whole of the decade and in 1923 it was still 10 points below it. According to a contemporary review: "The most striking difference between the manufacturing situation to-day and three years ago is the relatively greater efficiency of labour at the present time. An output of industry approximately that of 1920 has been obtained with a number of employees 12 per cent less than that reported in the earlier period and with much less overtime. The railroad situation also shows improvement. . . . The comparison between 1923 and 1920 is that of a smoothly operating business machine with one breaking under the strain of inefficiency, overload, and credit stringency."<sup>2</sup> Production for export did not absorb so much of the national effort and the transport industry was no longer a difficult bottle-neck. "All this is evidence of the healthy character of the present recovery."<sup>3</sup> In short, during the whole of the expansion

<sup>1</sup> *Journal of American Statistical Association*, 1935, pp. 361 *et seq.* (1923-25 = 100.)

<sup>2</sup> "Review of the First Quarter of 1923," *Review of Economic Statistics*, 1923, p. 1.

<sup>3</sup> *Ibid.*, p. 2.

there seemed to be little or no sign of those inflationary features, which the under-saving school has told us to expect.

I. Industrial production increased till April, when the curve flattened out for the next three months, and in July the recession began. Consumers' goods production fell in April; producers' goods production, all manufacturing production and bank debits in June; and employment in August. The general downturn may therefore be dated about the middle of the year, and we shall now proceed to discuss in turn the various factors which may have brought it about—government policy, foreign trade, underconsumption, labour scarcity, and credit restriction.

1. The policy of the Federal government continued to be deflationary. In the fiscal year, 30th June, 1922, to 30th June, 1923, the Federal debt was reduced by \$614 million.<sup>1</sup> For the calendar year, 1923, debts of all government bodies fell by \$113 million, as compared with an increase of some \$560 million in 1922. Government policy may, therefore, be regarded as a very minor depressing factor which contributed to the decline.

2. The great boom in foreign trade had definitely come to an end. In 1922 the merchandise balance amounted to only \$719 million, or about \$1,257 million less than the amount for 1921. In 1923 the situation deteriorated still further and the balance fell to \$376 million. The difficulties in Europe, which culminated in the occupation of the Ruhr, involved a heavy loss of trade for the American exporter. For the first six months of the year the balance was actually unfavourable for the first time since the War, and amounted to \$143 million as compared with a positive balance of \$401 million for the first six months of 1922. What had been a major component of total investment during the post-war boom had now fallen below zero and unless some powerful compensating factors had been at work, a recession was inevitable. But during the recovery from the slump in 1920-21 there had been a decline in the foreign balance far greater than that between 1922-23, and the problem is therefore to discover what offsetting forces, which had previously exercised such an important effect, were absent or weakened in 1923.

3. It is true that there was no inflation of wages and prices in 1923 comparable with that of 1920. Nor is this surprising since unemployment stood at nearly 4 million, or almost twice the 1920 level. On the other hand, contemporary reports referred to the absence of unemployment and, although such statements were too impressionistic to be accurate, there may have been virtually full employment in some

<sup>1</sup> Stewart and Tucker, *op. cit.*, p. 86 *et seq.*

sectors. Now labour scarcity may cause a decline by raising real wages, or by discouraging long-term investment because money-costs have gone up, even although no change has taken place in real wages. Between 1922 and 1923 wage-cost per unit rose from 92.5 to 103.1, but this was partly due to falling productivity, as well as rising money-wages, so the evidence is not unambiguous. It is fair to assume, however, that the decline in productivity per worker was in itself mainly due to labour scarcity and the employment of unskilled men.<sup>1</sup> In the heavy goods industries, moreover, the rise in money-wages alone was sufficiently large to have a depressing effect. In foundries and machine shops the index advanced from 92 in January, 1923, to 101 in May; in the iron and steel industry, from 88.1 to 100.8; in the automobile industry, from 94.5 to 102.1. In the construction industry rising costs had led, according to one commentator, "to the postponement of some projects."<sup>2</sup> The rent index rose from 160.9 in 1922 to 163.4 in 1923, but this was more than offset by the rise in building costs from 82.3 to 100.9 during the same period, and Mr. Tinbergen's index of the profitability of building fell from 4.40 to 3.05.<sup>3</sup> The index of contracts awarded reached a high peak at 88 in August, 1922, and then, during the next three months, fell some 12 points. In November, however, a fresh spurt began which carried the index to a high plateau at about 84 during the first five months of 1923. In July and August, however, a slump occurred and the index fell 8 points. "These developments are not surprising in view of the preceding advance and of the effort which has been made to have construction contracts postponed."<sup>4</sup> Finally, for the year as a whole, although there was no decline in total construction, there was a marked fall in the rate of expansion. Dr. Kuznets's estimate, in 1929 prices, record a rise of only \$300 million between 1922-23, as compared with a rise of \$2,600 million between 1921-22.

On the other hand, I do not think the evidence justifies an acceptance of the view that there was a slackening of technical progress. In the case of manufactures, the extraordinary rapid development of several great industries in 1924 is an indication of the abundance of technical opportunities, and we must look to other causes as an explanation of the decline.

4. When we turn to the underconsumptionist hypothesis the evidence is rather unfavourable. It is true that consumers' outlay fell from

<sup>1</sup> During the post-war boom, however, productivity increased in spite of labour scarcity.

<sup>2</sup> "Review of First Quarter of 1923," *loc. cit.*, p. 66.

<sup>3</sup> *Testing Business Cycle Theories*, Vol. I, p. 156.

<sup>4</sup> "Review of Second Quarter of 1923," *ibid.*, p. 179.

82.7 per cent of the gross national income in 1921 to 80.4 per cent in 1922, and only 77.7 per cent in 1923, but it cannot, of course, be concluded from these facts that the rate of growth of consumption itself declined. Indeed, the change in consumers' outlay which actually did take place affords a good example of the fallacy involved in doing so, for it rose from + 6.4 per cent between 1921-22 to + 9.1 per cent between 1922-23. A falling proportion consumed will only necessarily lead to a falling rate of growth of consumption when income itself is rising at a constant or decreasing rate, but, whereas gross income rose by only 9.4 per cent between 1921-22, it rose by 13.0 per cent between 1922-23. It was thus possible for the rate of growth of consumption to increase in spite of a falling proportion consumed. The evidence afforded by the index of department-store sales is no more favourable. There are no signs of a gradual flattening out.

5. A possible cause of the recession was the change in banking policy. In March and April, the Department of Commerce and the Federal Reserve Board decided that steps must be taken to control the boom. Member banks were advised to lend with caution and the business community was warned of the dangers of inflation. The report of the Federal Reserve Board for the year is one of the most important of the series, for it contains a clear statement of the philosophy which guided the credit authorities during these years. That philosophy has been called the Theory of Productive Credit. It is right to expand credit, according to the theory, so long as the increased funds are likely to be put to a productive use, but: "When production reaches the limits imposed by the available supplies of labour, plant capacity and transportation facilities—in fact, whenever the productive energies and resources of the country are employed at full capacity—output cannot be enlarged by an increased use of credit."<sup>1</sup> In the spring of 1923, it was felt that this stage had been reached. The Federal reserve board, with the experience of 1920 still fresh in its memory, was not prepared to allow any inflationary developments. It felt that the rise in prices, although it had been small, was a sure indication of trouble ahead, and it decided to stabilize business before the situation had got out of hand.

<sup>1</sup> *Report of the Federal Reserve Board*, 1923, p. 5. Although the Theory of Productive Credit has been severely criticized, its basic principle, as stated above, is undoubtedly sound. The difficulty is to find a criterion by which it could be put into practice. Clearly it is wrong to suppose that inflation will be prevented if money is only lent to "productive" borrowers, and not to "speculators," for the "productive" borrower may be able to increase his output only by bidding up wages in order to attract labour from other firms—in short, only by stimulating inflation. The ideal of Productive Credit requires the banks to determine their policy with reference to changes in the price-level, wages, and unemployment.

The average of re-discount rates rose from just over 4·2 per cent in February, 1923, to just over 4·4 per cent in March, and remained at about this level till the middle of 1924. This rise was almost insignificant, and the absolute level, 4·4 to 4·5 per cent, was low, compared with that prevailing during the previous boom (4·5-6·4 per cent). More important was the sale of U.S. securities which reduced total holdings from the high levels of the middle of 1922 (\$500-600 million) to \$316 million in March, 1923, and only \$90 million in August. Bills bought in the open market increased till November, 1922, and then began to decline in subsequent months, but the fall in bills re-discounted, which had characterized the recovery, came to an end in August, 1922, and within the next twelve months the total rose from \$396 million to \$809 million. It was the policy of the Reserve Banks to reduce their investments as re-discounts increased, in order to maintain total reserve credit at a constant level, and in this they were fairly successful. The total amount fluctuated at around \$1·2 billion.

The effect of this policy was a rise in market rates. Between the autumn of 1922 and the spring of 1923, the rate on prime commercial paper rose from about 4·5 to about 5 per cent; the rate on time money from just under to a little over 5 per cent; while the call loan renewal rate showed only an insignificant advance. This rise in the cost of short-term loans does not seem to be very alarming. It may have been, as Mr. Hawtrey believes, that judicious merchants balanced the disadvantage of reducing their stocks against the disadvantage of paying 0·5 per cent more for their loans and finally plunged the whole economy into a mild recession by choosing the former alternative. One must not say, with dogmatic assurance, that this did not occur, but it is remarkably difficult to believe.

Mr. Durbin's theory that the banks simply called in their loans can perhaps be accepted as an alternative. "All other loans" rose from \$7·4 billion in January to \$7·7 billion in March, and \$7·8 billion in May, and then remained roughly constant for several months. Thus the expansion was checked about the time when production began to reach its high plateau and it is possible, as Mr. Durbin would contend, that the recession was caused by the act of the banks in stabilizing their loans. The case, it is true, cannot be proved, for loans may have ceased to expand as the result of a fall in demand, not as the result of a fall in supply, but for once the possibility of this form of credit restriction cannot be definitely excluded. On the other hand, if this interpretation is the right one, we should have expected it to be accompanied by a much larger rise in short-term rates.



On the long-term market the yield on government bonds and first-class industrial bonds remained almost unchanged, but there was some increase in the risk premium on lower grade securities. In January, the yield on Baa bonds was 1.94 per cent higher than the yield on Aaa bonds, but by September the difference was 2.26 per cent. On the former, the yield rose from 6.98 per cent in January to 7.34 per cent in July, and share prices, after rising till March, began to decline until by July the index had fallen from 75.3 to 61.2. These facts are interesting because they strengthen the suspicion that the growing uncertainty about the future, reinforced by the pronouncements of the reserve board, was an important cause of the recession. People were growing nervous and the risk premiums on lower grade securities rose as a result.

There can be little doubt that the change in central bank policy, the rise in short-term rates, and the fall, however slight, in security prices had a more important effect on general confidence than on costs, and this fact must be emphasized in explaining the downturn. Producers were still rather nervous and, after their experience in 1920, they were resolved not to be left once more with large unsaleable stocks on their hands.<sup>1</sup> The very knowledge that the central bank intended to prevent any further expansion was interpreted as a prelude to deflation and the change in re-discount rate was more important in causing a reduction of orders than the subsequent change in market rates or the calling in of loans. Moreover, with producers in this frame of mind, they must have been particularly wary of an excessive issue of bonds, or even of preference shares, and "increasing risk," in Mr. Kalecki's sense, was probably an important factor.

We shall conclude, therefore, that the main causes of the recession were the growing inelasticity of expectations (due to the circumstances we have just considered), the rise in wage-rates, especially in the industries producing durable goods, and the general fall in productivity per man-hour.<sup>2</sup> Credit restriction may be added as a possible but somewhat dubious alternative.

II. The recession was very slight and at the end of 1924 recovery had begun. Industrial production reached its low point in July, 1924, after a fall of 22 points, and then began to revive, and the index of employment turned upwards a month later. Wholesale prices and bank debits recovered as early as July and May respectively. Gross

<sup>1</sup> Cf. Slichter, *loc. cit.*

<sup>2</sup> It is true that the rise in wage-rates was less than that which had already occurred some months before the upper-turning point in 1920, but, on the other hand, there was no government deficit in 1923 to offset the effects of labour scarcity.

investment was some \$2,639 million lower in 1924 than in 1923, but it was still on a high level at \$14,582 million, as compared with \$10,712 million in 1921 and \$13,403 million in 1922. Moreover, total gross income was actually greater in 1924 than in 1923 by about 1.0 per cent. The interesting problem is now to discover the reason for this rapid recovery, which is in such striking contrast with the long cumulative decline of 1929-33.

1. Once again the recovery received little stimulus from government policy. In the fiscal year ending 30th June, 1924, the Federal debt was reduced by \$1 billion, an amount which exceeded the debt reduction in the previous year by some \$3 million. This deflation was offset by increases in the debts of local government, for Dr. Kuznets's estimate for 1924 is \$144 million as compared with \$113 million in 1923. The revival, therefore, took place with little assistance from government policy.

2. The recovery was assisted, though scarcely caused, by easy credit conditions. In the first six months of 1924 the Reserve Banks bought \$298 million of securities, at a time when gold imports amounted to \$244 million. Member banks' reserves rose from a monthly average of about \$1,850 million in the third quarter of 1923 to over \$2,000 million in the third quarter of 1924, but this was accompanied by a fall in re-discounts during the same period from a monthly average of about \$800 million to about \$300 million. Short-term rates were reduced to very low levels. The average of re-discount rates remained at 4.5 per cent from March, 1923, till July, 1924, and then fell to below 4 per cent in August and in February, 1925, it reached the lowest point of the decade at just over 3.5 per cent. The market rates showed a similar decline; the rate on prime commercial paper fell by 1.4 per cent between January and July, when production reached its low point. This may have been a minor factor in stimulating recovery.

3. The fall in short-term rates was followed, as might be expected, by a decline in the yield on government securities, but the fall amounted to no more than one-third of one per cent—a fact which affords some confirmation of the theoretical argument that, since the long-term rate is determined by an expected average of short-term rates over a number of years, even a fairly appreciable fall<sup>1</sup> in short-term rates will not produce much effect on the pure yield. In the market for industrial securities, a more marked improvement took place, due to increasing confidence. The fall in bond yields, which

<sup>1</sup> Appreciable as compared with average changes in short-term rates during a period of six months, but not necessarily appreciable as a stimulus to investment.

had started in the middle of 1921, had been slightly interrupted by the boom of 1923, but the downward course was resumed in the latter part of that year. Between October, 1923, and December, 1924, the yield on Moody's Baa bonds fell from 7.45 per cent to 6.45 per cent, and the decline was to continue till the second quarter of 1928. On the other hand, the yield on Aaa bonds, which includes a far lower premium for risk and therefore corresponds more closely to the pure rate of interest, only fell three points from its peak in April till December, 1924.

Share prices reached a low point at 61.2 in July, 1923, and then recovered to 70 in February, 1924, thus moving upwards with business activity during the temporary recovery of these months. There was, however, a further relapse in the second quarter of 1924 and by May prices had dropped to 64.7. Then a fresh recovery took place and by December the index stood at 78. The average for 1924 is 69.7, as compared with 66.6 for 1923 and 64.7 for 1922. New issues of shares in 1924 exceeded new issues in 1923 by \$130 million.

We must conclude that favourable conditions in the securities market played a part in fostering recovery, but these improved conditions were due in a larger measure to changes in the risk premiums, which differentiate different classes of securities, than to changes in the pure basic yield. In short, they were secondary factors reflecting changes in confidence brought about, in turn, by other circumstances.

4. There was some improvement in foreign trade; the foreign balance, which had been unfavourable to the extent of \$143 million in the first six months of 1923, was positive and amounted to \$241 million in the first six months of 1924 (current \$). For the year 1924 the total merchandise balance was some \$605 million greater than for 1923. The American farmer was one of the main beneficiaries in the second half of the year. Crops were as large as in 1923, but in other parts of the world harvests were poor and there was a particularly large rise in exports of wheat, mainly financed by new issues on foreign account. "The outstanding feature of the price history of 1924, in fact the most significant economic development of the year, was the tremendous advance in the prices of farm products."<sup>1</sup> The acceptance of the Dawes plan and the steady rise of the pound sterling towards par also fostered the growth in foreign investment.

5. In the previous chapter we have already pointed to the relative growth of several industries and the important technical innovations made throughout industry as a whole, as explanations of the swift recovery in 1924. We shall now glance briefly at the statistics for this

<sup>1</sup> "Review of the Year 1924," *Review of Economic Statistics*, p. 25, p. 13.

period. There had been a certain relative over-production in the iron and steel and automobile industries, and the latter did not occupy the same position during this recovery as it had occupied during the post-war revival. On the other hand, rubber tyres and petroleum were breaking all records. Their production did not decline at all between 1923-24. The index for the former stood at 86 in 1923 and 98 in 1924; the index for the latter at 86 in 1923 and 99 in 1924. Between the boom year of 1923 and the boom year of 1925, the index of total manufacturing production rose from 101 to 105, but there was a very wide dispersion around this average.<sup>1</sup>

In short, several industries were forging ahead at a pace which exceeded the average and thus were sustaining a high level of investment. Two other industries, besides those mentioned, were enjoying a period of great prosperity. The production of electrical power, after a slight recession, recovered in June, 1924, and by the end of the year had far surpassed the highest output for 1923. Most important of all, however, was the great boom in the construction industry. Construction contracts awarded fell 7 points between May and July, 1923, but a revival took place in August and the index rose some 20 points to 98 in February, 1924. There was another mild recession and then an enormous advance began. By July, 1925, the index had jumped to 137, a rise since July, 1923, of 60. Dr. Kuznets's annual estimates increased from \$9 billion in 1923 to \$10 billion in 1924 and \$11.5 billion in 1925. It was in 1925 that the peak of the boom in residential building was reached. The estimates for 1923, 1924, and 1925 respectively are \$4.3 billion, \$4.6 billion, and \$5.2 billion. Since residential building is largely autonomous, and not so dependent as business construction on the general level of activity, prosperity in this sector must be regarded as an independent variable and perhaps the most important single cause of the revival. The recovery, moreover, was not due to a fall in costs, for the index increased from 100.9 in 1923 to 101.6 in 1924.<sup>2</sup> The rent index advanced, however, from 163.4 to 168.0.

6. It is now clear why a cumulative downswing, similar to that of 1929-33, did not follow the slight recession of 1923. The cheapness of credit is not a sufficient explanation, for credit was also cheap and plentiful during the first year of the Great Depression. The inadequacy of Mr. Hawtrey's hypothesis is thus demonstrated once more and it

<sup>1</sup> Cf. *Federal Reserve Board Report*, 1926, pp. 202-3.

<sup>2</sup> Wage-deflation does not appear to have been very important during the recession; the yearly index of hourly rates in manufacturing industry actually rises from 100.0 in 1923 to 106.7 in 1924.

is necessary to look for other factors. These we have found in the great construction boom, the rapid development of several industries, and the revival in foreign trade. A government deficit was the only favourable condition present in 1931-33, but absent in 1924, and the rather feeble policy of the Hoover régime, or even the more active policy of President Roosevelt, was an insufficient counter-weight to offset the absence of the real factors which played such an important part in every recovery in the 'twenties.

## CHAPTER XV

### THE YEARS OF STEADY PROGRESS: II

THE recovery from the slight recession of 1924 was rapid, and during the next few years all previous records for national production were far surpassed. Total gross income, measured in 1929 dollars, rose from \$77.4 billion in 1923, itself a year of prosperity, to \$78.3 billion in 1924, \$81.8 billion in 1925, \$86.4 billion in 1926, and \$85.8 billion in 1927. This great advance was achieved without any sign of incipient inflation and the period is, indeed, a remarkably unfortunate example for the school which holds that all expansions are almost certain to end in a violent rise in prices and costs. On the other hand, the elasticity of supply would seem to suggest that an over-saving hypothesis may be applicable and according to a great deal of generally accepted theory one would expect to find traces of a growing underconsumptionist pressure, which became more clearly evident in 1927 and finally caused the collapse in 1929. Once again, however, the evidence is hostile, for the rate of growth of consumers' outlay fluctuated in quite an erratic manner. Between 1923-24, consumption increased by 5.8 per cent, but between 1924-25 it decreased by 1.2 per cent. In the former case, the rise was accompanied by a rise in income of 1.2 per cent, in the latter case by a rise in income of 4.6 per cent. Apparently there should have been a slump in 1925, and we can only conclude that this did not occur partly because of the great construction boom in that year and partly because of the important innovations which were being made in many parts of the industrial field. Between 1925-26, consumers' outlay showed a remarkable rise of 7.9 per cent, which was not just a reflection of a still greater rise in income, for the latter only increased by 5.6 per cent. A dogmatic underconsumptionist would, I fancy, have no small difficulty in explaining this fact, which runs counter to his usual assumptions that the rate of growth of consumption will decline with rising real income. The rise in consumption, whatever its cause, serves to explain the high level of prosperity in the first three quarters of 1926. But between 1926-27, when consumers' outlay fell by 1 per cent, income also fell by 0.7 per cent, and the evidence is therefore less satisfactory than in 1925. We cannot say, with any degree of certainty, that the fall in consumption was due to a falling marginal

propensity to consume, for it may reflect the fall in income, which may, in turn, have occurred for reasons quite unconnected with changes in the marginal propensity to consume.

I. There was a stock market collapse and a slight recession in business in the first half of 1926, but in March industrial production began to rise once more, and by June share prices had recovered and there was every sign of great prosperity throughout the economy. Industrial production reached a high peak at 111 in October, 1926, and then fell four points in the next three months. A slight recovery to 110 in March, 1927, was followed by new decline to 101 in November. The index of employment started to sag in November, 1926, but after a fall of only two points it remained fairly stable till September, 1927, when a further drop of three points took place. A transient recovery at the beginning of 1927 was followed by a rather more serious decline in the second half of the year. It has been said that the recession was merely due to the closing down of the Ford works in May, 1927, and undoubtedly the fall in the production of motor cars from 4,309,000 in 1926, to 3,401,000 in 1927,<sup>1</sup> was a somewhat depressing factor. It is true that this may not be a sufficient explanation, for there were clear signs of slackening activity at the turn of the year several months before Ford shut down his works, but the automobile industry was also in some difficulties long before May. The output of cars, which had increased sharply between 1924—25, remained virtually constant between 1925—26, and the mild depression can be partially explained with reference to the changing fortunes of this very important branch of production. We must, however, look for other possible causes before reaching a final conclusion.

The trouble may have been due to sharply rising costs in the heavy goods industries or to a temporary exhaustion of investment opportunities or to a special form of underconsumption not reflected in our figures for consumers' outlay, namely, a fall in the demand for houses. The first of these possibilities may be excluded at once. There were no serious bottle-necks. The index of weekly money wage-rates in the industries producing heavy equipment showed a rise of only 1—3 points between 1925 and 1926, and it would, at any rate, be absurd to suppose that expectations had become extremely inelastic during this period of comfortable progress. The second alternative—an exhaustion of technical investment opportunities—is a possibility, but, on the other hand deepening, as measured by horse-power per worker, seems to have proceeded no more slowly than during the preceding years. There can, however, be little doubt

<sup>1</sup> *International Abstract*, p. 206.

that the recession was partly due to the fall in the rate of growth of construction. Residential building reached its peak in 1925 at the high level of \$5,218 million, but in 1926 the figure dropped to \$4,757 million, and although this was partly offset by an increase in some other forms of construction, the total fell from \$11,592 million to \$11,388 million.<sup>1</sup> The monthly index of construction contracts awarded records a decline in the first half of the year from the record peak of 139 in January to 120 in May, which was followed by recovery to a rather higher plateau at between 130-132 in the second half of the year. The general recession may, therefore, be regarded as the consequence, in part, of the first break in the great construction boom, and it must be noted that this break was due, not to rising costs, but to an excessive supply of houses. The index of building costs rose from 97.5 in 1925 to only 98.1 in 1926, and then fell to 97.3 in 1927. But the index of rents fell from 167.4 in 1925 to 165.4 in 1926 and 162.1 in 1927. Moreover, rents are rather sticky, and figures for the number of unoccupied houses would certainly indicate still more clearly that opportunities for expansion were coming to an end.

For once, indeed, we are not faced with a bewildering number of possibilities. In most other parts of the economy, the situation was favourable. Share prices continued to rise throughout the year, with the exception of a slight relapse in October, which followed, and was no doubt a reflection of, the decline in durable goods production. In November, however, the rise was resumed and during the last six months of the year the index advanced from 99.9 to 105.4. Still further increases took place at the beginning of 1927. Moreover, the yield on both Aaa and Baa bonds fell slightly, and in the short-term market, although rates were beginning to rise from the very low levels of 1924, there was no question of credit restriction. The reports of the Federal Reserve Board for 1926 and 1927 make no reference to "an excessive expansion" or to "the need for control." Phrases of this kind are to be found in the reports for 1919 and 1920, but not in those for the years we are now discussing.

There was a slight decline in the foreign balance of some \$300 millions between 1925 and 1926, but it is impossible to attach much importance to this factor. We may conclude that the main causes of the recession were the decline in the rate of growth of construction, which affected the heavy industries supplying materials for building, and the transitional difficulties in the automobile industry.

II. The recession was short-lived and would probably have come

<sup>1</sup> The decline in the rate of growth of construction is, of course, more important than the absolute decline which was small.



to an end even sooner than it did had it not been for the action of Henry Ford in closing down his works in August, 1927. During the year there was, indeed, a combination of favourable circumstances which prevented the development of a cumulative decline, and these we shall discuss in turn.

1. The first factor to be considered—and the one which has certainly received most attention in the past—is the policy of the Federal reserve banks. After August gold was exported and before the end of the year the monetary stock had fallen by \$200 million, but this loss was prevented by banking policy from exercising a restrictive effect. The reserve banks felt that vigorous action was needed to prevent a collapse and between May and December they bought no less than \$314 million of government securities, with the result that, during this period, member banks' reserve deposits rose from \$2,262 million to \$2,399 million.<sup>1</sup> This timely action of the authorities had the effect of ensuring an elastic supply of credit and thus preventing one minor source of friction which might have retarded the revival. Yet, for some reason, their policy aroused a storm of controversy and even a recent writer refers grimly to an action which had "the fatal consequences we all know."<sup>2</sup> It is believed by some that if a more severe recession had occurred in 1927–28, in place of the boom of 1928–29, the long-drawn-out depression of the 'thirties might have been avoided. I do not propose to discuss this contention in detail at the moment, but it will be clear, at a later stage, from the general conclusions of our empirical, no less than our theoretical, investigation, that this view cannot be plausibly sustained.

2. On the long-term markets conditions were also favourable. The rise in bond prices, which had begun in the middle of 1921, was still in progress. The yield on Moody's Aaa bonds fell from 4.73 per cent in 1926 to 4.57 per cent in 1927; while the yield on Baa bonds dropped from 5.87 per cent to 5.48 per cent. Throughout the whole of the recession share prices continued to *rise*, and the index advanced steadily from 103.6 in January, 1927, to 135.5 in December—a remarkable fact which indicates that the decline did not weaken the general confidence in the potentialities of the New Era. When industrial production was at its lowest point in the autumn of 1927, there was one favourable circumstance which prevented a collapse in confidence. This was the certainty with which most people attributed the decline to the reorganization of the Ford Works. There seemed to be nothing

<sup>1</sup> *Report of the Federal Reserve Board for 1927*, and R. Burgess, "The Money Market in 1927," *Review of Economic Statistics*, 1928.

<sup>2</sup> Hayek, *Profits, Interest and Investment*, p. 69n.

mysterious about what had occurred. Everyone believed he knew the cause of the trouble, and everyone was sure that the trouble would end as soon as the production of the new Ford car had begun. Speculators were therefore optimistic, in spite of the fall in corporate earnings from \$7.5 billion in 1926 to \$6.5 billion in 1927, and producers did not make their investment plans in an atmosphere of gloomy expectations. Finally, large capital gains were being made on the stock exchange and these were probably an important source of consumers' expenditure.<sup>1</sup> In 1930, on the other hand, this source had dried up.

3. Both foreign trade and the construction industry were depressed in 1926 and both revived in 1927. The foreign balance for the year is \$680 million, as compared with \$378 million for 1926. In the construction industry, the liquidation of the Miami boom and the collapse of the frenzied real estate speculation did not prevent an increase in total building. Residential construction declined still further from \$4.8 billion in 1926 to \$4.5 billion in 1927, but other forms of construction rose sufficiently to lift the total from \$11.4 billion to \$11.5 billion. The decline in total construction was thus arrested, although the earlier rate of expansion, which had had such profound repercussions on the whole economy, was not regained, and it is of interest to note that, while this increase in construction was partly due to the expenditure of public utility concerns, it was mainly the result of expenditure on public works. The increase in the former was \$153 million; in the latter, \$335 million. Thus, even at this date, public expenditure on construction was of growing importance.<sup>2</sup>

We have argued that there was probably some exhaustion of investment opportunities in manufacturing industry in 1927, but, by the beginning of 1928, the situation seems to have improved. The innovations of Henry Ford marked a great advance in automobile production and the industry enjoyed a new burst of prosperity. The output of cars jumped from 4,301,000 in 1926 to 4,359,000 in 1928 and 5,358,000 in 1929. Innovations, however, were not confined to the automobile industry: "Good business in the cotton, rayon and shoe industries and a continuing stream of new things—Diesel-engined locomotives, gas-pipe lines, the refrigerator merger, development of the Kraft paper industry in the south, radios—were features throughout."<sup>3</sup>

<sup>1</sup> Cf. Tinbergen, "Business Cycles in the United States of America," *Testing Business Cycle Theories*, Vol. II.

<sup>2</sup> The total public debt was reduced by \$71 million in 1927 as against \$119 million in 1926.

<sup>3</sup> Schumpeter, *op. cit.*, p. 791.

These developments were a stimulus to increased production and, together with the revival in foreign trade and construction, the prosperous conditions in the security markets, the expenditure on consumption from capital gains made on the stock exchange, and the plentiful supply and low cost of short-term finance, they serve to explain why no long and cumulative downswing took place. In the new year the American economy entered on the final phase of its great expansion.

## CHAPTER XVI

### THE FINAL BOOM AND COLLAPSE

THE year 1929 was notable for the coincidence of several deflationary forces. Dr. Kuznets's estimates record once more a falling off in the rate of growth of consumption, and although a similar development on various occasions in the past had not caused a long cumulative downswing, the compensating forces were now operating with diminished force. The great boom in residential construction had passed its zenith and the industry was entering upon one of its long periods of cyclical decline. At the same time, the possibilities of further technical development in manufacturing industry may have been more restricted. The great revolution in American economic life, brought about by the coming of the low-priced motor car, had not yet been fully accomplished, but the major changes had already taken place. For a time the stock exchange boom had a favourable effect, by making possible the issue of shares at high prices and also perhaps by providing an important source of expenditure on luxury goods out of capital gains; but in October, the boom was succeeded by a severe slump in share prices, with further deflationary consequences for the distressed business world. Finally, there were some signs of credit restriction, which afford, in the opinion of many economists, the most important explanation of the collapse.

The upper turning-point was reached about the middle of the year. The indices for all industrial production and factory production rose to 125 and 129 respectively in June and then began to decline in July. Employment rose slowly till July, remained constant in August, and fell in October. Thus there were signs of recession before the stock market crash and the latter was not merely the nemesis of speculative excess; it reflected, in the main, the change which was already apparent in the industrial situation. We shall, therefore, attempt to discover in the present chapter why this primary recession in output took place.

1. The main causes of the downturn were internal. There was some decline in the merchandise balance of trade but this amounted to only \$190 million between 1928-29 and a further \$60 million between 1929-30. This decline was considerably less than that which was partly responsible for the mild recession of 1926 and it was far less than that between 1920-22, which had failed to prevent the great

post-war revival. The reduction in this form of investment was so small that we must look elsewhere for an explanation of the violent collapse.

2. The background of credit policy during these years was, of course, the great bull market on the stock exchange. The magnitude of the boom may be judged from the fact that Cowles' index rose from 100 in 1926 to 118.5 in 1927, 154.3 in 1928, and 189.4 in 1929, and for some stocks, such as radios, the rise was still greater. Many accounts of this boom have been written, which vary from sober statistical analyses to the wildly sensational stories about "the crimes of Wall Street," but no really adequate study has yet appeared.<sup>1</sup> On the whole, there has been a tendency to attribute the rise in share prices to a kind of speculative fever which swept over the country and led to wild and foolish dealings on the stock exchange. I suspect, however, that a close investigation of what actually took place would reveal that speculation was not so frenzied after all and had, in fact, a sound basis in the great industrial prosperity of the nation.<sup>2</sup> In part, the rise in share prices reflected a rise in corporate earnings; in part, a fall in the risk premium on common stock which was due, in turn, to the swift and steady progress since 1922. No doubt many of the amateur speculators who entered the market paid no attention to corporate earnings and gambled wildly in hope of securing fabulous wealth, but it would be rash to suggest that the market was dominated from the start by people of this kind, and the part they played has received an exaggerated emphasis.

Let us, however, glance at the statistics for share prices and the yield on shares. If the boom had been entirely due to increasing confidence or wild speculation, the rise in share prices should have been accompanied by a proportionate fall in yield, but no such fall took place. Between 1921-29 share prices rose by 267 per cent, but this was accompanied by a fall in share yield of only 2.4 per cent.<sup>3</sup> The latter decline is a fair measure of the degree to which the boom was caused by increased confidence, and it was natural, during a period of sustained prosperity, that a large rise should occur.

<sup>1</sup> If the present sketch of events serves no other purpose it may at least suggest at various points the need for specialized research on different topics. The share market boom—its origins and its effects on consumption and investment—is one of them.

<sup>2</sup> Cf. Irving Fisher, *The Stock Market Crash and After*.

<sup>3</sup> \$100 worth of shares yielded \$5.9 in 1921. By 1929, \$100 worth of shares sold at \$367. If the return had been unchanged at \$5.9, this would have implied a yield of only 1.6 per cent. In fact, the yield in 1929 was 3.5 per cent.

Share prices had continued to rise without a break during 1927, but in February, 1928, a slight recession occurred, and it was confidently predicted in many authoritative quarters that the boom had come to an end.<sup>1</sup> At the beginning of March, however, a recovery began which was due, in part, to the purchases of a powerful group of financiers, whose action reflected in itself the return of prosperity and the prospect of higher profits ahead. During the next few months share prices leaped upwards from 134.8 in February to 141.1 in March, 149.5 in April, and 154.1 in May. The gloomy prophecies of imminent collapse were not, apparently, to be vindicated.

During this period, the reserve banks reversed their expansionist policy of 1927 and made efforts, which were to continue till October, 1929, to regain control of the situation. In December, 1927, holdings of U.S. Government securities stood at the very high total of \$606 million, but by August, 1928, they had been reduced to only \$210 million, a decrease of no less than \$396 million. At the same time, the exportation of gold continued, and amounted to \$119 million in the first quarter and \$253 million in the second. The pressure on member banks resulted in an increase in re-discounts from \$469 million in January (or 34 per cent of total reserve credit) to \$1,000 million (or 71 per cent of reserve credit) in July. The average re-discount rate rose from 3.4 per cent in January to just over 4 per cent in April and to 4.9 per cent in August.

The restriction was partly counteracted by two circumstances. First, the reserve banks' holdings of acceptances were kept by the member banks at the seasonal peak of December, 1927, for the buying rate for acceptances was below the re-discount rate. Some member banks, especially those in New York, evaded the restrictive measures to some extent by creating acceptances and selling them to the reserve banks, in order to increase their reserves with the least possible increase in their indebtedness.<sup>2</sup> Indeed, throughout the whole period from the end of 1927 till the downturn in 1929, member banks took advantage in this way of the reserve banks' willingness to buy acceptances at comparatively low rates. In the second place, the member banks preferred to borrow at the reserve banks, when this proved necessary, rather than cut down very drastically their loans and investments. This breach with orthodox practice weakened the power of the reserve authorities.<sup>3</sup>

The net effect was an increase in total loans and investments of

<sup>1</sup> Notably by Moody's Investment Service and the Harvard Economic Society.

<sup>2</sup> Schumpeter, *op. cit.*, p. 896.

<sup>3</sup> Burgess, *The Reserve Banks and the Money Market*, p. 206 *et seq.*

some \$660 million in the first five months of 1928, followed in the next three months by a decline of \$340 million. Reserve policy was apparently meeting with some measure of success. There was a fall in brokers loans and in May share prices began to fall. At the same time—and this is a fact of the greatest importance—there was a steady increase in “all other loans” from \$8,631 million in January to \$8,936 million in July. In short, when the banks felt obliged to cut down their accommodation they put pressure, not on business, but on security speculation. This policy was to be followed during 1929, and it seriously reduces the probability that the downturn was due to credit restriction.

In the second half of 1928, however, the situation became easier. The stock exchange boom had suffered a slight setback in May which lasted till August, and as usual there were many predictions that at last “the day of reckoning had come.” The reserve banks had therefore some reason to feel that their policy had been successful and that “the dangerous speculative excesses” had been brought to an end. At the same time the seasonal needs of industry for accommodation had to be met, and they decided, in these circumstances, to relax their restrictive policy. No more government securities were sold—there were, indeed, very few left to sell—and \$305 million of acceptances were bought at about  $4\frac{1}{2}$  per cent to facilitate the moving of the crops and the finance of foreign trade, until by the autumn two-thirds of total acceptances were held by the reserve banks.<sup>1</sup> The exportation of gold had also come to an end, and although imports only amounted to \$45 million in the last five months of the year, a serious strain had at least been removed. Member bank reserve deposits, which had fallen to \$2,274 million in August, rose to \$2,367 million in December and total loans and investments increased by \$380 million.

But the stock market boom had not come to an end. It was, indeed, only beginning. Between July and December the index rose from 147·8 to 178·4, and at the beginning of the new year the reserve banks had little reason to congratulate themselves on having brought the boom under control. The index continued to go up. In January it stood at 192·5 and in March at 196·0. It seemed that the policy of easier money in the second half of 1928 had only added fuel to the flames and the reserve board now decided to take the initiative and looked round for some instrument with which to check the conflagration.<sup>2</sup>

<sup>1</sup> *Report of Federal Reserve Board for 1928*, p. 6.

<sup>2</sup> Previously: the board had adopted a rather passive policy and the initiative had usually been taken by the reserve banks or the open market committee. (Cf. A. C.

The reserve banks had already reduced their holdings of U.S. Government securities from \$512 million in January, 1928, to \$229 million in January, 1929, and it was clear that open market sales could not be carried out in the future on a scale which was likely to be effective. There was the alternative of raising the re-discount rate, but it was felt that such a step might result in a reduction of the supply of funds to industry, and the board was particularly anxious to avoid this undesirable complication, for ". . . there was nothing in the position of commercial credit or of business to occasion concern. The dangerous element in the credit situation was the continued and rapid growth of the volume of speculative security credit. . . . The problem was to find suitable means by which the growing volume of security credit could be brought under orderly restraint without occasioning avoidable pressure on commercial credit and business."<sup>1</sup>

In these circumstances, the board decided to resort to a policy of direct pressure. Throughout the previous year it had, as we have seen, adopted a rather passive policy, but on 2nd February, 1929, it assumed at last a position of leadership and sent a letter to the reserve banks which warned them of the growing dangers of the situation. "The Federal Reserve Act," it stated, "does not, in the opinion of the Federal reserve board, contemplate the use of the resources of the Federal reserve banks for the creation or extension of speculative credit. A member is not within its reasonable claims for re-discount facilities at its reserve bank when it borrows either for the purpose of making speculative loans or for the purpose of maintaining speculative loans. The board has no disposition to assume authority to interfere with the loan practices of member banks, so long as they do not involve the Federal reserve banks. It has, however, a grave responsibility, whenever there is evidence that member banks are maintaining speculative security loans with the aid of Federal reserve credit."<sup>2</sup> A similar letter was sent to the public on 7th February: "When it (the board) finds that conditions are arising which obstruct the Federal reserve banks in the effective discharge of their function of so managing the credit facilities of the Federal reserve system as to accommodate commerce and business, it is its duty to inquire into them and to take such measures as may be deemed suitable and effective in the circumstances to correct them; which, in the immediate situation, means to

Miller, "The Responsibility for Federal Reserve Policies," *American Economic Review*, 1935, p. 422 *et seq.*, and Schumpeter, *op. cit.*, pp. 894-5.)

<sup>1</sup> *Report of the Federal Reserve Board*, 1929, pp. 1-2.

<sup>2</sup> *Ibid.*, p. 3.



restrain the use, either directly or indirectly, of Federal reserve facilities in aid of the growth of speculative credit."<sup>1</sup>

These passages deserve quotation for they make it clear that the restrictive policy of the reserve banks was directed, not against industry and trade, but solely against stock exchange speculation. If the downturn in midsummer was, in fact, the result of credit policy, this was very far from being the deliberate purpose of the board.

On 14th February, the board received from the New York reserve bank a recommendation that reserve rates everywhere should be raised to 6 per cent. This was the first proposal of any kind which the Board had received since June, 1928, and an important controversy ensued. No immediate steps, however, were taken, partly because the policy of direct pressure seemed to have become effective. Between 13th February and 30th May, bankers' loans to brokers on their own account were reduced and although this was partly offset by an increase in loans on behalf of others, the total of brokers' loans fell from \$5,568 million to \$5,288 million. There was a further rise in short-term rates. Time rate and call rate rose from 7.58 and 7.35 per cent respectively in January, to 8.64 and 9.15 per cent respectively in May. The rise in stock prices was checked and reversed, but this success was only temporary. The index of stock prices fell from 196 in March to 191 in June, and then the upward movement was resumed. By July, the index had reached 202.7, by August 210.3, and by September 216.1. The final and most spectacular boom was yet to take place.

In part, no doubt, this recovery was due to "the uncontrollable speculative fever"; in part, to the wickedness of certain member banks.<sup>2</sup> But in the first half of 1929, the reserve banks were attempting to prevent a rise in prices which was, in itself, partly the reflection of the increased earnings of corporations.

"Loans on behalf of others" were, in any case, becoming relatively more important than loans made by banks on their own account. The increase in the total in July was entirely supplied by the banks, but during the next three months additional funds were derived mainly from non-banking lenders. For October, 1929, the latter amounted to \$3,600 million, the former to only \$2,900 million.<sup>3</sup> The situation was, in short, becoming increasingly difficult to control, and on 9th August, the reserve board took firmer measures and raised re-discount rates to 6 per cent. In its anxiety, however, to avoid any

<sup>1</sup> *Ibid.*, p. 3.

<sup>2</sup> In March, for example, the powerful National City Bank disregarded the reserve board's warnings and poured \$25 million into the stock market. Cf. *Report of Senate Committee on Banking, Speculation and Currency*, 1933, p. 18.

<sup>3</sup> *Report of Federal Reserve Board for 1929*, p. 119.

pressure on an industrial system which was already in decline, it had already lowered the buying rate for bankers' acceptances from a range between  $5\frac{3}{8}$ – $5\frac{3}{4}$  in March, to a range roughly between  $5\frac{1}{4}$ – $5\frac{1}{2}$  in July. The rise in re-discount rate was accompanied by a further reduction to between  $5\frac{1}{8}$ – $5\frac{1}{2}$  on 9th August. Two important facts must, therefore, be borne in mind. The re-discount rate was only raised *after* industrial production had begun to fall, and even this rise, when it took place, was accompanied by a slight reduction in acceptance rate in order to make matters as easy as possible for all but the speculators. We shall now turn to the conditions in the short-term market and attempt a final appraisal of the case for the credit restrictionists.

The case is not, I think, as strong as might be supposed. The rate on prime commercial paper rose from 5.38 per cent in January to only 6 per cent in June and July, when the upper turning-point in production took place; acceptance rate rose from 5 per cent in January to  $5\frac{3}{8}$  per cent in June and  $5\frac{1}{8}$  per cent in July; and the rate charged on customers' loans rose on the average by about 0.3 per cent. Not a very startling advance! So far as short-term rates are concerned, there was much less sign of credit restriction than there had been in 1919–20, when the prime commercial paper rate rose by 1.3 per cent in the six months preceding the decline. It is true that the rise which did take place was all the more effective because prices were constant or falling, but it is difficult to attach any degree of importance to a change of such a small magnitude as 0.62 per cent. Account must, of course, be taken of the psychological repercussions of rising rates, reinforced by the pronouncements of the reserve board, but they cannot have had a very serious effect on "New Era" expectations. When all has been said, it cannot be claimed that the pure monetary explanation is at all convincing.<sup>1</sup>

Credit restriction may, of course, have operated in a more direct manner. The banks may simply have refused to increase their advances or to renew advances already made, and, in this way, rather than by means of the rate of interest, they may have checked the expansion. But this explanation is also unacceptable. First, we must note that if the supply of credit had simply been cut down in this way, at a time when business was otherwise enjoying prosperity, this action would at least have been *accompanied* by a steep rise in the market

<sup>1</sup> Cf. Schumpeter, p. 859. On page 876n, he writes: "... we hold that in booming conditions a 1 per cent increase in interest charges does not induce a significant restriction in business operations. Perhaps, in strict logic it should, but it does not. The economic world is no billiard table. . . . The monetary strain of 1928 and 1929 is pure moonshine." Cf. also, Burgess, *The Reserve Banks and the Money Market* (1936 ed.).

rates of interest—since banks try to maximize their profits—and this, as we have seen, did not take place. The actual rise in market rates is in itself a fair indication of the degree of credit restriction which took place. Secondly, it must be emphasized that the reserve banks were anxious to extend credit to industry and trade, and prepared to treat with more generosity those member banks which discriminated against speculation and in favour of productive borrowers. The members themselves seem to have fallen into line with this policy. As we have already seen, when total loans and investments were cut down in the spring of 1928, this action was entirely at the expense of brokers, and "all other loans" increased. The same was true of the restriction in the spring of 1929. "All other loans" rose throughout the whole of 1928 till January, 1929, when a decline of \$200 million took place, but the rise was resumed in the spring of 1929. Whereas the monthly average for brokers' loans fell some \$300 million between March and June, all other loans continued to rise till April, remained constant in May, and started to rise once more in June. The rise continued throughout the rest of the year till November, when the upper turning-point was reached, some five months after the upper turning-point for industrial production and employment. Between November, 1927, and November, 1928, "all other loans" increased by \$198 million; between November, 1928, and November, 1929, they increased by no less than \$778 million. Even if "all other loans" and industrial production had turned down together it would still be wrong to attribute the recession to credit restriction, for the decline in "loans," in that case, might be the result of a fall in demand, rather than a fall in supply. Since, however, "loans" continued to increase long after a decline in production had taken place, we must conclude that the banks were giving increased accommodation to distressed borrowers and the fact that they were prepared to do so and thus to allow a continuous rise in "loans" is in itself sufficient to put out of court the arguments of the credit restrictionists.

There are, moreover, two final considerations which, together with those already discussed, are such as to justify a rejection of the case. First, we must recall that short-term borrowing was becoming increasingly unimportant. It was customary for firms to finance their investments in working capital by using their own savings, or by raising sufficient long-term capital on the security markets to make them independent, in the future, of the banks. If we may judge from the results of the Oxford inquiry, discussed in Chapter IX, the cost and availability of bank credit are never so important, even in England, as the pure monetary school would have us believe, and it is certain

that the developments in corporate finance in the United States during these years made them increasingly less so. Secondly, when the stock market collapsed, interest rates were immediately reduced and, during the first year of the depression, short-term credit was extremely cheap and very plentiful, yet the most favourable conditions in the money market were unable to stimulate a revival. These facts will be discussed in more detail in the next chapter; at the moment the evidence will merely be used as a powerful argument against the monetary school, for if the depression is to be explained at all we must be prepared to admit that there were real forces at work in 1929-30 which restricted the demand for credit to a far greater degree than banking policy restricted the supply.

3. It may be suggested that even if banking policy had little effect on direct short-term borrowing, it had an important effect on security prices. The steady decline in bond yields, which had begun in 1921, came to an end in 1927 in the case of Baa bonds, and in 1928 in the case of Aaa bonds. During the last two years of the great expansion the slow rise in short-term rates changed expectations and the yield on government bonds rose by 0.27 per cent between 1928-29. For Aaa bonds, the rise was 0.18 per cent during the same period, and for Baa bonds, 0.39 per cent. Between January and September, 1939, the monthly index for the former rose from just over 4.6 per cent to 4.8 per cent, while the monthly index for the latter rose from over 5.6 per cent to over 6.1 per cent.<sup>1</sup> As in the case of the short-term rate, it is difficult to regard this rise in yield as an important factor in making business men restrict their output. The rise is much less, for example, than that which took place during the post-war boom. Moreover, the rise in bond yield was accompanied by soaring share prices which offset, and perhaps more than offset, the mildly depressing conditions in the bond market. It may be retorted that the latter is far more important than the former and that only the smaller part of the funds used in industry is raised by the issue of shares. As a general rule, this retort would be effective, but during the "great bull market" a change took place in the method of raising capital for industry. "One of the most striking features of the post-war investment situation was the great increase of financing through stock issues, accompanied by a relative decline in the amount of financing by bond issues."<sup>2</sup> Total industrial bond issues exceeded total share issues till the 4th quarter of 1928 and then the latter became more important. In 1927 the

<sup>1</sup> Cf. Schumpeter: "... increase (in bond yields) from the second quarter of 1928 to the third quarter of 1929 was but small." *Op. cit.*, p. 813.

<sup>2</sup> Mills, *Economic Tendencies*, p. 458.

latter constituted only 25 per cent of total issues; in 1928, 46 per cent; in 1929 no less than 70 per cent.<sup>1</sup> It is true that in 1929 a large part of new share issues were made by investment trusts, security trading and holding corporations, etc. Total share issues were \$6.9 billion, financial issues \$2.2 billion and industrial issues \$4.7 billion. Nevertheless, even the last figure exceeded total industrial bond issues, which amounted to \$3 billion. Total issues of all kinds were \$10 billion in 1929, as compared with \$7.8 billion in 1928. It is, therefore, scarcely possible to maintain that the expansion was checked by the rise in bond yields or by "increasing risk," which discouraged the issue of new securities.

4. We shall now proceed to examine the contention that there was a scarcity of savings in 1929. In the last two years of prosperity, the national income, expressed in 1929 prices, rose by some seven billion dollars, while the index of industrial production advanced from 101 in November, 1927, to 125 in June, 1929. Yet this remarkable advance was achieved with little sign of overstrain in the industrial organism. The under-saving school is faced, as in 1927, with the awkward fact of falling prices. The wholesale index rose slightly after the 1927 recession and then, after falling some 3 points in the second half of 1928, remained virtually constant up to the final catastrophe. Between 1928-29 there was a fall of 1.4 per cent. It may be argued, in defence of the under-saving position, that agricultural products are heavily weighted in the index and that its curious behaviour is due to the great slump in agricultural prices. The rise in non-agricultural prices is thus concealed and false conclusions—so it may be argued—are drawn about the absence of inflation. This line of defence, however, may be easily assaulted. The fall in prices was by no means confined to agricultural produce. There was also a slight decline in the prices of manufactured goods, in place of the sharp rise which should have taken place if the under-saving hypothesis were sound.

Thus it appears that, in so far as the indices of wholesale prices are reliable, they do not indicate any deficiency of savings in 1929, but rather the reverse. As an additional test, however, we shall refer to the indices of the cost-of-living, wage rates, pay-rolls, employment, and output, respectively. The first of these, the cost-of-living index, is a fair measure of the "scarcity" of savings. For 1928 the average stood at 100.6, and for 1929 it was unchanged. The peak was reached in October at 101.2, as compared with 100.9 in October, 1928. In 1920, on the other hand, it stood at 122.6 in July, as compared with only 102.4 in July, 1919. In the former case the rise amounted to

<sup>1</sup> *Commerce Year Book*, 1930, p. 629.

TABLE VIII  
WHOLESALE PRICES 1922 = 100

Year	All	Farm	Non-farm	Raw	Manufactured
1922	100.0	100.0	100.0	100.0	100.0
1923	104.0	104.1	106.9	106.3	105.3
1924	101.4	105.2	102.1	105.5	102.8
1925	107.0	113.4	102.6	114.8	104.9
1926	103.4	105.8	101.3	107.9	101.7
1927	98.7	105.1	97.7	105.2	98.2
1928	100.0	109.9	94.2	108.1	98.9
1929	98.6	106.9	94.1	105.6	97.9
Annual average rate of change (per cent)	- 0.5	0.8	- 1.5	0.5	- 0.7

Source: Mills, *op. cit.*, pp. 316, 333, 340.

0.3; in the latter to 20.2. The striking difference between the two great booms of the post-war decade is thus made abundantly clear. In the first case, there was a genuine scarcity of savings; in the second there was not.

The average for the index of hourly money wage rates is 107 in 1928 and 109.1 in 1929. Once again the rise is small and in sharp contrast with the enormous inflationary advance during the post-war boom. The monthly index records no appreciable rise during 1929, from 108.1 in January to 108.3 in May, which may be compared with the rise in the Douglas index from 214 in November, 1919, to 235 in March, 1920. The index of wage-cost per unit remained constant between 1928-29.

The wage index in the industries producing heavy equipment showed a rather more pronounced rise from 96.4 in January to 100.4 in May, and it is possible to argue that this rise in costs led to the postponement of investment projects in spite of the increase in effective demand. But the argument is not convincing for two reasons. First, the rise was fairly small as compared, for example, with the rise in 1920. Second, a rise in costs will only cause a reduction in this form of investment at certain stages in the cycle, when expectations are inelastic, and not throughout the cycle as a whole, for if the latter were the case the cycle would soon be damped. If, therefore, it is argued that rising wages caused the collapse, some reasons must also be offered in defence of the implicit assumption that expectations were inelastic, and it would be a difficult task to discover evidence of this kind during the period of "New Era" psychology. As we shall see

below, rising costs were not responsible for the fall in residential construction.

Finally, we shall glance at the indices of factory pay-rolls and factory production.<sup>1</sup> The former fell from 106 in December, 1928, to 102 in January, 1929, and then rose to 112 in May. The latter advanced steadily from December, 1928, when it stood at 110, till April, when it had reached 128. In short, although pay-rolls were increasing rather more quickly than employment, factory production had leaped ahead of both to an extent which makes inapplicable, once more, the under-saving hypothesis.

In face of these facts the under-saving school has adopted a rather different line of argument from that which they usually apply to the upper turning-point, for they have contended—and no one will deny this contention—that stable or even slightly falling prices may conceal a huge inflation of profits. In the words of Professor A. D. Gayer: "A credit expansion sufficient to keep prices stable when production is increasing can only be healthy if monetary costs are also rising quickly enough to keep profits in check."<sup>2</sup> A similar argument has been advanced by Professor Robbins in *The Great Depression*.

It is not altogether clear why a high rate of profit should be regarded as a peculiarly sinister phenomenon by the *under-saving* school. It is true that if the high rate is accompanied by a shift in the distribution of income in favour of the saving classes, a crash may well take place, but this consideration can scarcely be put forward by those who believe that there was a scarcity of savings! Indeed, in so far as corporate profits rose at the expense of other factors, the likelihood of inflationary developments in the future was correspondingly reduced. On the other hand, it may be argued that with profits at a high level capital intensity was reduced and this involved a fall in total investment and in income. We have already demonstrated, however, in Chapter VI, that an increase in consumption can never, under any circumstances, lead to a decline in investment and this argument must also be dismissed. Finally, the high rate of profits may be regarded as a sure indication that ultimately a genuine inflation of prices and costs *would* have developed if credit had not been restricted and that under-consumption, or an exhaustion of investment opportunities, would not have caused a decline. This argument is a *non sequitur*. It is possible, of course, although it is not certain, that it may be right. But there are, as we have seen, good grounds for supposing that credit

<sup>1</sup> The former has not been seasonally adjusted and I am therefore using the unadjusted index for the latter as well.

<sup>2</sup> *Monetary Policy and Economic Stability*, p. 110.

stringency was not important and the expansion was, in fact, brought to an end by other forces before inflation had developed.

5. The conclusions of the last section are significant because from the nature of the expansion, we may now regard underconsumption as a *possible* hypothesis. The direct evidence must be examined.

There was a slight decline in the proportion consumed from 80.2 per cent of gross national income in 1928 to 78.3 per cent in 1929.<sup>1</sup> The fall in the proportion consumed was accompanied by a decline in the rate of growth of consumers' outlay from 7.4 per cent between 1927-28 to only 1.5 per cent between 1928-29. This fall, it must be emphasized, was not the mere reflection of a decline in income for the latter increased from \$90.2 billion in 1928 to \$96.6 billion in 1929, a rise of 3.7 per cent. Similar evidence is afforded by the index of department store sales, which rose from 107 to 109 between the first and the last quarters of 1928. In the first quarter of 1929 it reached 111, then throughout the next two quarters the curve is practically horizontal.

This fall in the rate of growth of consumers' goods production may have been due either to a falling propensity to consume or to labour scarcity, or, perhaps, to both. If, however, labour scarcity had been the more important factor, we should have expected a greater rise in wage-rates and prices. The explanations are not, however, mutually inconsistent and both may be applicable, but there can be little doubt that insufficient spending was the more important of the two.

It is easy, therefore, to develop a strong case for the underconsumptionist explanation. Prices were falling; wage rates showed only a slight increase; the increase in factory production was far outstripping the increase in factory pay-rolls; the market was "for buyers," not "for sellers"; the propensity to consume had fallen and the fall had been accompanied by a decline in the rate of growth of total consumption and of department store sales. Moreover, depression was first felt in the industries producing investment goods and, to adopt a different classification, in the industries producing durable goods, which is what we should expect from the theory of the relation. Thus a provisional case seems to be established.

It must, however, be recalled that there had been clear signs of underconsumption in other years, yet no collapse took place. We have explained the stability of the period, 1922-29, as the consequence of

<sup>1</sup> This decline, it must be noted, was not due to a shift in the distribution of income from the working classes. On the contrary, the relative share of manual labour rose slightly from 35.8 per cent in 1928 to 36.1 per cent in 1929, and the many underconsumptionist theories which place so much emphasis on a supposed fall in the relative share of the workers cannot be applied to 1929. (Cf. Kalecki, *op. cit.*, p. 17.)



the building boom, the deepening of the capital structure due to innovations, and the development of new consumers' goods. A very important conclusion must now be drawn. Underconsumption (even excluding the demand for houses) seems to have been one of the factors which checked the expansion in 1929, but it is not, in itself, a sufficient explanation, for if the compensating factors had been as strong in 1929 as they were in 1925, the fall in the rate of growth of consumption would not have caused a collapse. *The collapse occurred only because the development of underconsumption was accompanied by a declining demand for houses and a serious exhaustion of investment opportunities.*

6. There is direct evidence that investment opportunities were exhausted in the construction industry. Residential construction reached a high peak at \$5.2 billion in 1925 and it had fallen to \$4.3 billion in 1928. A further decline took place in 1929 to only \$3 billion. The decline may have been due to several causes. There may have been a steep rise in costs, or a scarcity of credit or a surplus of houses. The first depressing factor—the rise in costs—was responsible for the decline in construction in 1920 but *not* in 1929. The index of building costs remained virtually constant between 1925–29, and in 1929 it stood finally at 97.6, as compared with 100.9 in 1923 and 101.6 in 1924, when the great boom was in full swing. The second factor—credit stringency—cannot be dismissed so quickly. In his study of residential building in St. Louis,<sup>1</sup> Mr. C. F. Roos has concluded that the most ominous feature of the closing years of the decade was the steep rise in the number of foreclosures and it seems that the scarcity of funds was therefore a major factor in causing the decline. But as Mr. Tinbergen has pointed out, the foreclosure rate is closely correlated with the number of unoccupied houses, and he has found in his own investigations that “the movement is dominated by the stock of houses lagged over three and a half years.”<sup>2</sup> Apart, indeed, from the results of regression analysis, it is clear that credit stringency was not an important factor, and the arguments to the contrary have usually been based on the fallacy that the mortgage rate or the foreclosure rate is the relevant indicator of what was taking place. It is clearly necessary to distinguish between two things: first, the rise in the pure long-term rate of interest; secondly, the rise in the risk premium on certain kinds of securities. Only the first of these factors is an independent variable in the present inquiry, and if it were true that, at the top of the boom, there was a rise in the yield due to a rise in

<sup>1</sup> *Op. cit.*, pp. 69–110.

<sup>2</sup> *Op. cit.*, Vol. I, p. 98. Mr. Roos finally reaches a similar conclusion. (*Op. cit.*, p. 78.)

expected short-term rates or an exhaustion of speculators' resources, then this factor might, indeed, have been important. But between 1928 and 1929 the yield on government bonds advanced by only 0.27 per cent, and this can scarcely be regarded as the cause of the enormous decline in residential construction between those two years. The rise in mortgage rates must, therefore, have been almost entirely due to a rise in the risk premium. It reflected, not a scarcity of savings, but a growing conviction that the construction industry no longer offered the high profits of previous years. The increase in foreclosures was not the result of an insufficiency of investible funds, but rather of the inability of borrowers to meet their obligations. This conclusion is supported by the behaviour of the rent index, which falls from 167.4 in 1925 to 157.6 in 1928, and 153.7 in 1929. It must, moreover, be borne in mind that rents are rather "sticky," and their decline is an insufficient measure of the depressing effect of a large number of vacant houses.

The decline in the profitability of building may be partly explained by referring to the figures for population. Between 1919 and 1924 the population increased by 8.0 per cent, but between 1924 and 1929 it increased by only 7 per cent. One would expect, therefore, that the demand for new houses would decline.<sup>1</sup> It is true that account ought to be taken of all kinds of complications which would require a long and detailed study of the income elasticity of demand for better housing, internal migration, and so on, but it is unnecessary for our present purposes to examine these additional problems. *The essential fact is that the decline in construction was due to an exhaustion of demand and not to a rise in costs or a scarcity of credit.*

Although total construction did not fall as much as residential construction—due to increased investment by business concerns, public utilities and public works—the decline in total construction was substantial. For 1928, the figure was \$11.5 billion; for 1929 it had dropped to \$10.5 billion, a decline of about 1 billion dollars. We have here one explanation of the slump, for whereas the increase in construction had offset, on previous occasions, a decline in the rate of growth of other forms of consumers' outlay, the fall in the latter in 1929 was accompanied, not by a compensating rise, but by an accentuating fall in total construction.

It would seem from our discussion so far that underconsumption and the fall in building activity were the only two deflationary forces in 1929 which deserve major emphasis, for we have already dismissed as relatively unimportant the fall in the foreign balance, and the rise in interest rates and wages. We have still to consider the effects of

<sup>1</sup> Cf. W. H. Newman, *The Building Industry and Business Cycles*.

the alleged exhaustion of investment opportunities in manufacturing industry which was, in the opinion of many economists, a sinister development at the end of the 'twenties. Both these factors, however, can be studied most conveniently in the next two chapters, where an attempt will be made to explain the long and severe depression and the imperfect recovery which finally took place.

## THE GREAT DEPRESSION

THE index of industrial production fell abruptly from 125 in June, 1929, to 103 in December, a fall of 22 points in six months. In 1920 the fall was less steep and amounted to only 6 points in six months. Moreover, in the latter case the low point was reached within about a year, after a fall of some 30 points; but in the 'thirties the decline seemed for a time to be endless. A transient recovery at the beginning of 1930 was followed by a fresh recession, and at the end of the year the index had fallen 40 points. There were some signs of revival at the beginning of 1931, but these too soon disappeared, and by July, 1932, the index had dropped another 26 points. Even then no sustained recovery took place till the second half of 1933. The total decline of 67 points may well be contrasted with the post-war decline of only 31 points.

The gross national income, in 1929 prices, fell from \$94 billion in 1929 to \$58 billion in 1932, and although a recovery began in the latter year the 1929 level has only recently been regained. For no less than five years America lived on her capital. In 1931 net investment, in 1929 prices, was negative to the extent of \$358 million, and this figure fell to minus \$5.8 billion in 1932, minus \$4.3 billion in 1933, minus \$3.5 billion in 1934, and minus \$0.5 billion in 1935. Consumers' outlay dropped from \$73.3 billion in 1929 to \$54.5 billion in 1932. It is unnecessary to refer to the other statistics. All record the same fact that the depression was extraordinarily severe and unusually long. Within eighteen months of the post-war downturn there were clear signs of recovery; but in the 'thirties three years elapsed before the nadir was ultimately reached.

1. It is impossible to contend that the severity of the depression in the United States was primarily due to the fall in world trade. It is true that the total volume of the latter declined from \$68 billion in 1929 to \$56 billion in 1930 and American exports dropped by some 27 per cent; but what matters in the present context is America's foreign balance, and in this case the decline was only \$60 million. The total fall between 1928 and 1930 was a mere \$255 million, which might, *ceteris paribus*, have caused a slight recession, considerably milder than that which occurred in 1926, but nothing more. As the cumulative downswing continued and the world depression spread,

further declines took place, amounting to \$449 million between 1930-31, \$45 million between 1931-32, and \$63 million between 1932-33. Yet the total fall between 1928 and 1933 was only \$812 million, as compared with the huge fall of \$3,640 million between 1919-22. It is clear that some offsetting factors of extraordinary importance were present during the post-war years but absent during the depression of the thirties since, in spite of the much greater decline in the foreign balance in the earlier period, the depression was far less severe. This remains true after allowance has been made for differences in price levels.

2. It has frequently been said that the agricultural crisis was the main cause of the depression, and that, if some means had been found to alleviate the distress of the farmers in the 'twenties, the disaster might well have been avoided. It is true that after the terrible slump of the post-war years there was a slight recovery in farm prices, and the 'twenties were not marked, as is generally supposed, by a steady deterioration of the farmers' position, but rather by a degree of improvement. During the late 'twenties, however, this upward movement was reversed, and the farmer was pushed back even farther into the abyss. Between 1919 and 1921 the purchasing power at wholesale prices of farm products fell by 24 per cent;<sup>1</sup> between 1929 and the low point in February, 1933, the fall amounted to 43 per cent.<sup>2</sup> Moreover, the second downslide began from a point in 1929 which was 4.6 per cent below the 1919 peak.<sup>3</sup> Now a shift in the distribution of income which injures the relative position of farmers is likely to reduce the marginal propensity to consume and the slump in farm prices, relatively to other prices, may therefore be said to have accentuated the depression. Unfortunately it is not possible to say much more on this topic until some careful studies have been made of the propensities to consume in different sections of the community—a formidable task. It is worth noting, however, that the decline in farmers' purchasing power during the great depression was twice as great as the decline in the post-war slump.

3. During 1930, the total of public debts rose by \$745 million as compared with \$230 million in 1929. Over the next few years a still more marked change took place. The Federal surplus of \$746 million for the fiscal year 1930 was replaced by a deficit of \$616 million in 1931, and \$2,685 million in 1932. The increase in the Federal debt offset the decline in state and local borrowing and total public debt went up by \$2.3 milliard in 1931, \$3.2 milliard in 1932 and

<sup>1</sup> Mills, *Economic Tendencies*, p. 208. <sup>2</sup> Mills, *Prices in Recession and Recovery*, p. 103 et seq.

<sup>3</sup> Mills, *Economic Tendencies*, p. 343.

\$2.3 milliard in 1933. It is interesting to note that this important change in Federal policy began during the Hoover régime, although the new policy was carried out more enthusiastically by the Roosevelt administration. It is true that there were some signs of recovery in 1932, as the critics of the New Deal would emphasize, but it is also true that this recovery was preceded and accompanied by the creation of a Federal deficit, and the latter must be regarded as one of the most important causes of the revivals both in 1932 and again in 1933.<sup>1</sup> Unfortunately the stimulus from total public spending came more slowly than after the post-war boom, for whereas public debt reductions of \$600 million were followed by an increase in debts of \$545 million in 1921—a net change of \$1,145 million—additions to debts in 1930 exceeded additions in 1929 by only \$500 million. This difference was not without significance during the critical months at the beginning of the downswing. In 1922, however, the surplus had increased once more, while in the 'thirties huge deficits appeared; and if the economy had possessed a resilience during the later period similar to that of the earlier period, depression would soon have given place to inflation. How can this striking difference be explained?

4. Wage policy may perhaps provide an answer. There was a great difference between wage policy in 1929–30 and wage policy in 1920–21. In 1920–21, as we have seen, wage deflation was swiftly and thoroughly carried out and the index for hourly earnings in manufacturing industry fell from 112 in 1920 to 96.8 in 1921. In the Great Depression, however, very little immediate change took place, and the index fell by only one point from 109.8 in 1929 to 108.9 in 1930. In foundries and machine shops, a fall of 14.1 points in the post-war slump must be compared with a *rise* of 1.1 points between 1929 and 1930; and in the iron and steel industry a fall of 31.2 has to be set against a rise of 1.2. It would appear, therefore, that the change in wage policy affords one important explanation of the difference between the two depressions.

There are certain important considerations which weaken to some extent the force of this contention. There had been a very sharp rise in wage rates in 1919–20, but there had been only a slight rise in 1928–29, and expectations were very different in two cases. After the post-war boom, business men felt that a deflation of costs and prices was essential, but in 1930 this does not appear to have been so. "For many months most employers clung to the belief that the maintenance

<sup>1</sup> Cf. Schumpeter, *op. cit.*, p. 984n: ". . . whoever refuses to believe that the recovery in 1932 occurred in the ordinary working of the system will have to believe instead that Mr. Hoover turned the tide."

of the existing wage-levels would expedite recovery and therefore refrained from cutting wages."<sup>1</sup> The constancy of wage rates was not generally regarded as a serious barrier, which had to be overthrown to make way for recovery; on the contrary, many business men had begun to learn that wages and prices are connected, and they felt that by maintaining the former the dangers of the "vicious spiral" might be avoided. Thus, in 1930, high wages were not merely the outcome of a dangerous "radical" policy on the part of the government<sup>2</sup> or a stubborn blindness on the part of the trade unions—the latter were in a weak position—for wage policy also reflected the ideas of business men themselves.

Without doubt wage deflation in the heavy goods industries would have had a beneficial effect. Admittedly high costs do not seem to have been responsible for the downturn in 1929—they were certainly not the cause in the construction industry—and deflation was not, therefore, necessary in the sense in which it was necessary in 1921. In other words, if the causes of the '29 collapse had been removed, then wage policy would have offered no obstacle to a swift recovery. (If, for example, the rise in short-term rates had been the main cause of the downturn, the rapid fall in those rates in 1930 should have brought about a revival and wage policy would have been a passive element throughout the boom, the downswing and the recovery.) Nevertheless, a sharp cut in the heavy goods industries in 1930 would have been a powerful positive stimulus to recovery.

When employers finally reverted to the older policy, severe reductions were made. For manufacturing industry as a whole the index fell by 18·3 points—a fall which was almost as great as that between 1920–22. The decline, however, was spread over a much longer period of time and whatever advantages it may have brought were largely offset by the depressing effect of a sagging wage-level. By adopting at the outset a high wage policy and then gradually abandoning it for the orthodox remedy of wage deflation, the employers merely succeeded in the end in getting the worst of both worlds.<sup>3</sup>

5. It is sometimes argued that the severity of the depression was

<sup>1</sup> *Salary and Wage Policy in the Depression*. National Industrial Conference Board, May, 1932, p. 4.

<sup>2</sup> President Hoover appealed for the maintenance of wage rates.

<sup>3</sup> The index of wage cost per unit fell by 23 points between 1929–33 as compared with 38 points during the post-war depression. Unfortunately, the index also reflects changes in productivity, and does not provide an adequate measure of the effect of changes in money-wages on real wages. No satisfactory index of real wages, i.e. product-wages, has yet been made.

due to the stock exchange collapse: first, because the latter increased the cost of new issues; second, because capital gains had provided an important source of consumers' expenditure; third, because confidence was rudely shaken. As we have seen, however, the decline in production had already begun while the stock exchange boom was still in progress and the fall in share prices merely reflected, in a large measure, the fall in profits, just as the rise in prices had reflected their increase. But the fall was also accompanied by a decline in confidence and an increase in risk premiums, which involved a greater fall in prices than that justified by the fall in profits and caused a rise in yield-expectations in the last three months of 1929 and during the subsequent years of the depression. Thus, although the stock exchange collapse was not the initial cause of the decline, it may have accentuated the severity of the downswing.

First, let us consider the effect on consumption. The stock exchange boom may have caused a certain amount of dis-saving, for, according to one theory, successful speculators were inclined to spend a part of their capital gains on consumption goods and this expenditure tended to increase the boom and to offset, in some measure, the signs of under-consumption which were becoming apparent. When stock prices fell, production had already begun to decline, and the stock exchange collapse may then have been followed by a further increase in savings, which were already greater than investment; or by a smaller decline in savings than would otherwise have occurred as a result of falling income and falling profits. It is difficult to find any method of testing this proposition, but it is interesting to note that the deflationary effect of the stock exchange collapse does not seem to have fallen with immediate and peculiar severity on the luxury goods industries. On the whole the latter appear to have enjoyed a fair degree of prosperity in 1930.<sup>1</sup> It would, however, be rash to conclude from this fact that the theory is of little importance, for it is reasonable to suppose that a certain time-lag was bound to elapse before consumers could adjust expenditure to the new situation. The depression in these industries which occurred at a later stage may have been, in part, the retarded effect of the collapse in capital values.

Secondly, the sensational slump in share prices had an undoubted effect on general confidence. The importance of this factor can, however, be easily over-estimated, for 1930 was not a year of profound gloom. Share prices rallied and the index rose from 148.8 in January to 170.8 in March, and at that figure it still exceeded the highest

<sup>1</sup> Cf. A. R. Tebbutt, *Behaviour of Consumption in Business Depression* (Harvard Business Research Studies, No. 8).



records for all months prior to November, 1928. It may, for example, be compared with the peak of 100.4 which was reached during the "great boom" of 1925. Industrial production rose 4 points in the first two months of the year, and many authorities believed that the recession would not greatly exceed in its severity the decline of 1924.<sup>1</sup> It was only in the second half of the year that the imminence of general collapse became apparent and it cannot, therefore, be held that it was the mere psychological effects of the stock exchange slump in the autumn of 1929 which plunged the economy into deep depression. It was one factor, no doubt, but not, perhaps, a very important one.

Finally, we come to the cost of long-term borrowing. The index of share prices fell from 189.4 in 1929 to 140.6 in 1930, 87.4 in 1931, and 46.5 in 1932; while the yield on shares rose from 3.52 to 4.74, 6.11, and 7.15. In these circumstances, new issues of shares were clearly unattractive, and the depressing effect was only partly offset by a fall in bond yield. The yield on U.S. government bonds fell from 3.60 per cent in 1929 to 3.28 per cent in 1930; a decline of only 0.32 per cent. In the industrial market the fall was even smaller. The yield on Aaa bonds dropped by 0.18 per cent, while the yield on Baa bonds was unchanged. The fall in government bond yields was roughly equal to the fall which took place between 1920-21, but in the course of the next two years increasing liquidity preference actually caused a rise in yields. In 1931, 1932, and 1933, respectively, the yield on government bonds was 3.31 per cent, 3.66 per cent, and 3.31 per cent; on Aaa bonds, 4.58 per cent, 5.01 per cent, and 4.49 per cent; on Baa bonds, 7.61 per cent, 9.30 per cent, and 7.76 per cent. Once again, the facts lend very little support to the vague statement that "the long-term rate is high during the boom and low during the depression." It is clearly essential to distinguish between different classes of securities and different phases of both "boom" and "depression."

We must conclude that the fall in share prices was only slightly offset by falling bond yield in 1930 and was not offset at all in 1931. Unfavourable conditions in the long-term market, which were themselves entirely due to the rising liquidity preference—for there had been a sharp fall in short-term rates—had the cumulative effect of depressing industry still further.

6. The stock market collapse was followed by a change in the policy of the reserve banks which was so immediate and so complete that the advocates of the monetary school must find the greatest difficulty

<sup>1</sup> Cf. Schumpeter, *op. cit.*, p. 911.

in explaining the continuation of the downswing. Since the middle of June the reserve banks had foreseen that the stock market would soon collapse under its own weight, if for no other reason, and they had begun to consider the best means of enabling the country to bear the shock. When, therefore, the crash occurred, they acted with promptitude and decision, according to the accepted theory of the monetary school.

Member banks in New York City had put themselves in a fairly strong position before the crash occurred by liquidating their loans to brokers, and they were able to give powerful assistance to the market. In the week ending 30th October, they increased their loans and investments by \$1,400 million, thus lifting the burden from outside banks and private lenders to the stock market and causing the most rapid increase in bank credit which had ever occurred in the history of the country. The consequent rise in the demand for reserve deposits was met by the New York Reserve Bank, which bought \$150 million of U.S. Government securities in a single week, and re-discounted freely for member banks. In the following eight weeks, the latter were able to liquidate their commitments, and loans to brokers on their own account fell by \$1,200 million. By the end of the year the total liquidation of loans to brokers by banks and others amounted to \$4,500 million. This was partly offset by an increase in security loans to borrowers other than brokers of \$600 million, but total security loans fell by \$3,900 million.<sup>1</sup>

Between October and November, the reserve banks bought \$200 million of securities and the increase in purchases continued during the new year. The monthly average of weekly holdings rose from \$485 million in January, 1930, to \$583 million in July, 1930, as compared with a mere \$147 million in July, 1929.

Open market purchases were accompanied by a reduction in the re-discount rate and the buying rate for acceptances. The former was reduced at New York from 6 per cent to 5 per cent on 1st November, and from 5 per cent to  $4\frac{1}{2}$  per cent on 15th November. Similar reductions to  $4\frac{1}{2}$  per cent were carried out about the same time at Boston, Chicago, San Francisco, Atlanta, Kansas City, and (in January, 1930) Philadelphia.<sup>2</sup> The reductions continued in 1930, till at the beginning of 1931 the rate at New York and Boston was only 2 per cent and  $2\frac{1}{2}$  per cent respectively; and, in the other cities, between 3 per cent to  $3\frac{1}{2}$  per cent. The buying rate for acceptances, which, it will be recalled, had already been reduced in August, 1929,

<sup>1</sup> *Report of Federal Reserve Board for 1929*, p. 12.

<sup>2</sup> *Ibid.*, p. 11.

fell to 4.6 per cent in December, 1929, 3.75 in March, 1930, 2.6 in June, and 1.9 in December.

It is clear that if, in attempting to control the stock exchange boom, the reserve banks had put some slight and unintentional pressure on industry, they were resolved to remedy the evil by a vigorous and timely policy of credit expansion.<sup>1</sup> "The year 1930 was marked by a reduced demand for bank credit from trade and industry, and by decreasing commodity and money rates, all characteristics of a period of declining activity. In these circumstances the Federal Reserve System pursued a policy of monetary ease."<sup>2</sup> We must now glance at conditions in the open market in an attempt to appreciate the effects of this action on the cost and availability of commercial credit.

The rate on prime commercial paper stood at 6.12 per cent in September, 1929. By December it had dropped to 5 per cent. This drop was in itself twice as great as the rise during the first seven months of the year when producers had decided, for some reason, to reduce their output, and the fall did not stop at this point. Between January and July, 1930, the rate dropped from 4.89 per cent to 2.16 per cent, and this fresh decline may also be compared with the rise from 5.38 per cent to 6 per cent between January and July, 1929. Similar declines took place in the rates charged on loans to the security markets. In September, 1929, the averages for call rate and time rate stood at 8.94 per cent and 8.56 per cent, respectively; within twelve months they had fallen to 2.75 per cent and 2.25 per cent respectively. The rates in the latter part of 1930 were lower than at any other time since 1919.<sup>3</sup>

The banks were in a strong position till near the end of 1930, for, with the importation of \$280 million of gold, the decline in money in circulation and the security purchases of the reserve banks, they were virtually out of debt in the financial centres throughout the whole period. Total bills re-discounted fell from \$969 million in September, 1929, to \$501 million in January, 1930, \$251 million in June, and \$189 million in September. Thus the banks were well able to lend, if there had been any borrowers, but the latter, apparently, were scarce.

The increased purchases of investments, acceptances and commercial paper, and the slight rise in loans on real estate, did not suggest that

<sup>1</sup> "The Federal Reserve System . . . followed a policy of cheap money—thus giving business all the rein and all the encouragement it could wish for." Cf. Schumpeter, *op. cit.*, p. 916.

<sup>2</sup> *Report of the Federal Reserve Board for 1930*, p. 1. Cf. also, Kemmerer, *The ABC of the Federal Reserve System*, 1938 edition, p. 154.

<sup>3</sup> *Report of the Federal Reserve Board for 1930*, p. 2. Cf. also, Burgess, "The Money Market in 1930," *Review of Economic Statistics*, 1931.

the banks were anxious to avoid an increase in their assets. With large reserve deposits, there was no reason why they should be. If loans did not expand, in spite of the fact that rates reached lower levels than at any time since the war, it would appear that the cause was a lack of demand rather than a restriction of supply. This conclusion, however, suggests that the downturn in 1929 was due to some other factors rather than the stringency of credit, for if the trouble had been entirely due to the rise in short-term rates—which was, in any case, very small—the swift reduction in those rates should have stimulated a recovery in 1930.

In the second half of 1930, business conditions became worse, and towards the end of the year the banking system began to feel the strain. Failures increased, money in circulation rose, and the rate on prime commercial paper advanced by nearly 1 per cent. There was an improvement in the new year, and during the spring the reserve banks were able to continue their policy of monetary ease.<sup>1</sup> Gold was imported and in the first eight months the stock increased by some \$300 million, while the reserve banks increased their holdings of investments by over \$100 million. During the previous year interest rates had already fallen below the lowest level reached in the previous twenty years, but still further reductions took place. The re-discount rate fell to 1·5 per cent at New York, and 2–3·5 per cent elsewhere; the buying rate for acceptances was only 1 per cent; and in the market the rate on prime commercial paper was once more down to 2 per cent by midsummer, while acceptance rate was  $\frac{7}{8}$  per cent. Member banks increased their investments by \$1 billion in the first eight months and the continuous fall in “all other loans” was presumably due to the lack of demand, not the restriction of supply.

These favourable developments came to an end in the autumn. The difficulties of Central Europe marked the beginning of a crisis which was to bring down in ruins the international gold standard, rebuilt with so much toil and care in the first post-war decade. England abandoned gold in September and the repercussions of this event led to credit restriction in the United States. Between August and October, the gold stock fell by \$700 million, and money in circulation rose by \$500 million. The increased pressure on member banks was reflected in a rise in re-discounts and bills bought of \$300 million and \$567

<sup>1</sup> Cf. *Report for 1931*; and *World Economic Survey*, 1931–2, p. 70; “In the spring of 1931, as in the spring of 1930, . . . there was ample evidence of monetary ease in the chief creditor countries and of the accumulation of liquid capital. In past crises, such conditions in the principal monetary markets had been the precursor of recovery from depression.”

million, respectively. Interest rates rose by about 2 per cent—to levels which were still, however, far below those prevailing in 1929.

The first seven months of 1932 were the trough of the depression, but in face of gold exports and rising money in circulation the Federal Reserve System "continued to pursue the policy of monetary ease which it has followed since the beginning of the depression."<sup>1</sup> The holdings of U.S. securities were increased by \$1 billion, or twice the amount of the external and internal drains of cash, and member banks were able to reduce their indebtedness with the reserve banks. The latter were enabled to follow this active policy by the passage of the Glass-Steagall Act (27th February, 1932), which permitted the issue of notes against formerly ineligible U.S. securities, and by July \$682 million notes had been issued in this way. Another clause in the Act permitted members to borrow on formerly ineligible paper, and although the amounts actually borrowed in this way were small, the existence of the clause was calculated to increase the confidence of member banks.<sup>2</sup> The discount rate at New York, which had been raised from 1.5 per cent on 7th May, 1931, to 2.5 per cent on 9th October and 3.5 per cent on 15th October, was reduced to 3 per cent on 26th February, 1932, and 2.5 per cent on 24th June. There were similar reductions in market rates.

The Hoover Administration made an attempt to ease the heavy burden of debt and support the tottering credit structure by the creation of three new bodies—the National Credit Corporation (13th October, 1931), the Reconstruction Finance Corporation (22nd January, 1932; powers extended 21st July, 1932), and the Home Loan Bank Act (22nd July, 1932). The most important of these was the R.F.C., which lent valuable support to banks, insurance companies, trust companies, mortgage companies, railroads, building societies, agricultural credit corporations, etc. By the end of 1932 loans amounting to \$1.2 billion had been made, \$600 of which were to banks.<sup>3</sup>

During the last five months of 1932 there was a perceptible, but, as it proved, a transitory, recovery. The outflow of gold was reversed, there was a slight decline in money in circulation, members' reserves increased and member banks were able to increase their investments by \$1.2 billion. It appeared, for a time, that the measures taken had proved successful and that the worst phase of the crisis was past. These hopes were rudely dashed in the spring of 1933. The puny

<sup>1</sup> *Report of the Federal Reserve Board for 1932*, p. 10.

<sup>2</sup> Cf. Burgess, *op. cit.*, pp. 51–2. For a discussion of the Act, see *Federal Reserve Board Report for 1932*.

<sup>3</sup> *Report of the Federal Reserve Board for 1932*, p. 22.

efforts to improve the agricultural credit situation had been wholly inadequate, and the new crisis had its origins in the mortgage difficulties of the West. Between January and March it had spread eastwards and threatened to shatter the whole structure of American banking. Between these months money in circulation rose by the huge sum of \$1.3 billion, and the situation was aggravated by the loss of gold after February. Re-discounts and bills bought increased by \$662 million and \$341 million respectively, and market rates of interest jumped by about 2 per cent. Bank after bank was forced to close its doors until even the greatest institutions were on the verge of collapse. Banking holidays were declared in different parts of the country, and, finally, to check the rot, President Roosevelt declared a nation-wide holiday on 6th March. To meet the panic demand for cash, the free export of gold was prohibited on 10th March, and the Emergency Banking Act (9th March) permitted the issue of Federal reserve bank notes against U.S. securities without any reserve. Provision was also made in the Act for the re-opening of the banks, and the swift and resolute action of the new Administration met with such success that it was possible to begin this re-opening within four days, although some \$4 billion of deposits were still tied up, on 12th April, in banks which were not allowed to re-open or were unable to do so.<sup>1</sup>

These reforms were followed by a return of confidence. The gold flow was reversed; money in circulation fell by \$1.5 billion between 8th March and 26th April, and Federal reserve credit by \$1.3 billion, while members' reserves rose by \$360 million. Re-discount rates were lowered and market rates began to decline once more. The rate on prime commercial paper had risen from 1.25 per cent in January to 3.06 per cent in March, but in April it was down to 2.43 per cent, and by the autumn it had once more regained the very low levels of the previous winter. Other rates followed a similar course.

Before the end of March it was apparent that the panic had been stopped and the banking system saved. The Administration's emergency measures were then followed by a more permanent contribution in the form of the Banking Act of 16th June, 1933, which did much to strengthen confidence by means of a new scheme for deposit insurance. Branch banking was also encouraged, the supervisory powers of the reserve banks were increased, and measures were adopted to prevent member banks, as far as possible, from taking part in, or encouraging, stock exchange speculation.<sup>2</sup> At the same time, vigorous steps were taken to deal with the agricultural credit situation, which had been

<sup>1</sup> *Federal Reserve Board Report for 1933.*

<sup>2</sup> See *Federal Reserve Board Report for 1933.* Also Burgess, *op. cit.*

a peculiar source of weakness during the depression. (Emergency Farm Relief Act, May, 1933.) Thus reformed and strengthened, the banking system was no longer an obstacle to recovery.

To sum up, the banking crises provide an important explanation of the severity of the depression. It is true that the effects on the short-term rate of interest were slight and transient and there is little reason to suppose that industry suffered for any length of time from an inelastic supply of working capital. But the succession of sensational crashes had a disastrous effect on confidence, which raised the risk premium on long-term securities on the one hand, and made business men reluctant to borrow on the other. To a large degree these crises were due to the very severity of the depression itself, and similar developments would have taken place after 1920 if the depression had lasted long enough; but in part they were the evil outcome of both the investment policy of the banks during the boom and the international situation. The weakness of the banking structure does, therefore, help to account for the differences between the two major depressions during our period of study. But it is doubtful whether even the most ardent supporters of the "monetary" explanation would contend that this is the whole explanation. First, it is curious that the easy money policy of 1930 did not meet with more success; second—and more important—even after the reconstruction of the banking system and the provision of an abundant supply of very cheap money, the recovery was very imperfect and dependent on government support, a fact which indicates that the inducement to invest was considerably weaker than it had been during the 'twenties.

7. So far we have discovered six probable factors which explain in part the differences between the two depressions: first the change in wage policy; second, the relatively greater increase during the 'thirties in the cost of new share issues; third, the relatively weaker position of the banks; fourth, the agricultural crisis; fifth, the cessation of luxury expenditure from capital gains on the stock exchange; sixth, the somewhat smaller decline in government saving during the first critical year of the downswing. We have not, however, attached much importance to the effects of the Wall Street collapse on general confidence, and we have definitely rejected the view that the changes in foreign trade afford any explanation at all. Two very important fields of inquiry have, however, been neglected, namely changes in the stock of capital and the rate of innovation, and it is possible that a more complete explanation may be discovered by examining these factors.

(a) First, let us assume that all investment is intended to widen

the capital structure, in order to produce more of the same type of consumers' goods, that there are no changes in foreign trade, government policy, real wages, or the availability of credit. The demand for producers' goods is then a function of the demand for consumers' goods, and the theory of the relation may be employed to explain the course of events.<sup>1</sup> When a decline has come to an end and savings are no longer greater than investment, *ex ante facto*, the system may remain in equilibrium at a low level of activity if current gross investment is just sufficient to meet replacement needs.<sup>2</sup> If, however, capital is being consumed, a stage will be ultimately reached when an increase in gross investment must take place in order to produce even the existing volume of output, and this increase will set the economy in motion on the upward spiral. The time required to reach this stage will depend upon the size of the capital stock and the propensity to consume. If, therefore, the accumulation of fixed capital during a boom has been relatively small and much of the equipment is old, the depression is likely to be much less severe than in the opposite circumstances.

The capital stock at the beginning of the Great Depression far exceeded the capital stock at the beginning of the post-war slump. The latter was preceded by war-time disorganization and by a short inflationary upswing which was, in the main, an inventory boom. In 1919 and 1920 respectively, business inventories formed 18.8 and 28.2 per cent of gross investment and these figures must be compared with an average of 4.2 per cent between 1922 and 1929, and with 11.9 per cent for the year 1929 itself. In the earlier period, a back-log of replacement orders had yet to receive attention; in the 'thirties, the depression followed a decade of unparalleled prosperity, when investment in the durable means of production had proceeded on an enormous scale. Herein lies an important difference between the two depressions.

The effect of the change in the stock of capital is clearly seen in the case of the construction industry. During the post-war depression, the need for houses was so acute that rents continued to rise in spite of the *fall* in income, and in 1922 the index was 26 points higher than in 1920.<sup>3</sup> But rents had already begun to decline in spite of *rising* income even before the slump of 1929 and the fall continued in the

<sup>1</sup> Cf., e.g. R. F. Harrod, *The Trade Cycle*; M. Kalecki, *Economic Fluctuations*, Ch. VI; N. Kaldor, "A Model of the Trade Cycle," *Economic Journal*, March, 1940, and Ch. X above.

<sup>2</sup> Cf. Joan Robinson, *Essays in the Theory of Employment*, p. 105 *et seq.*

<sup>3</sup> Bureau of Labour Statistics (1913 = 100). Figures for June of each year. (Cf. Tinbergen, *Testing Business Cycle Theories*, Vol. I, Appendix B.) See also the authorities referred to above, p. 121.



following years. Between 1929 and 1932 the index fell by 25.9 points. Even during the recovery the rise in income was insufficient to raise the level of rents until 1937, when an advance of 8 points took place.

(b) Given the assumptions of the last section, the revival will not begin till net investment has fallen to zero or less than zero, and it has been argued that this stage was reached much more quickly in the post-war depression than in the 'thirties. An examination of the statistics reveals, however, that there was no capital consumption at all during the earlier depression, whereas between 1931 and 1935 capital consumption amounted to \$14 billion. We must therefore remove some of our assumptions to explain why the upswing began before the theoretical turning-point had been reached in the former case, but not in the latter. Several possible explanations have already been discussed, but a fourth factor, which is perhaps the most important of all, has been neglected so far—namely the availability of investment opportunities; it is more convenient, however, to study it in detail in the next chapter, when we shall attempt to account for the unsatisfactory nature of the recovery.

## THE PARTIAL RECOVERY, 1933-37

So great was the degree of national well-being during the 'twenties that the American journalists created the pleasant myth of a "New Era," in which cyclical depressions would be unknown and sorrow and sighing would vanish away. But the next few years brought disillusionment in place of these happy dreams, and substituted a profound depression and partial recovery for the comfortable prosperity of Main Street. At the peak of the upswing in 1937 gross national income was 4 per cent less than in 1929; or if a somewhat wider comparison is desired, the average for 1935-37 was 7 per cent below the average for 1927-29.<sup>1</sup> Thus, in spite of the increase in population and the advance in technology, the American people were worse off in the second post-war decade than they had been in the first—a tragic comment on the achievements of modern capitalism. In this final chapter we shall look for an explanation of the imperfect nature of the recovery.

1. One notable difference between the two decades was the relative increase in the importance of government policy in the later period. The mere change of administration was in itself a stimulus to recovery. The slump had occurred while Mr. Hoover was President, and his Administration had proved incapable of preventing a long depression. It is true that recovery began during his last year of office, but when this upturn was reversed during the banking crisis in the spring of 1933, there was a general clamour for vigorous reorganization by the government of the whole economic machine. For this task the new Administration seemed to be well fitted. President Roosevelt with his programme for a New Deal, and his reassuring radio talks, was able, by the sheer force of propaganda, to do much to restore confidence, and his resolute action during the banking crisis raised still higher the expectation of a vigorous recovery programme. No doubt it is true that "in the long period it is statistics, not psychology, which matter," but, in the short period, the importance of "psychology" is unquestionably very great.

2. When the concrete measures were actually produced, some of

<sup>1</sup> Kuznets, *National Product since 1869*.

them were scarcely likely to foster recovery. In this category must be placed the industrial codes of the N.I.R.A.,<sup>1</sup> which received so much emphasis at the time. The attempt to control the volume of production was only a negative measure, compared with which Say's Law would have marked a theoretical advance! Moreover, the regulation of production and prices tended to increase the degree of monopoly and thus reduce the marginal propensity to consume. More serious, perhaps, in its implications, was the attempt to prevent the installation of new plant, for although this seemed to be sound commonsense in view of the large amount of excess capacity, new investment and the consequent increase in income were precisely the means by which this excess capacity could be absorbed. Indeed, the only possible advantage of the codes was a momentary one. After the long and disastrous decline in prices, any government declaration that further declines would be prevented was likely to have some beneficial effect. But the fall in prices had already come to an end before the codes were introduced in the middle of 1933, and as the expansion continued the latter became little more than an encumbrance, which—fortunately for President Roosevelt—was removed by the Supreme Court in June, 1935.

3. On the whole, the A.A.A. is far less open to criticism than the N.I.R.A., for it dealt with a long-term problem of relative maladjustment and the restriction of output was not an absurdly paradoxical policy, as it undoubtedly was in the case of the industrial codes. The effect of restriction on the degree of monopoly was also, of course, far less serious. Indeed, the fierce criticism to which the Act was subjected by contemporary liberal economists now seems a trifle absurd—almost as absurd as the naïve faith of its more ardent supporters in whose eyes it was the talisman which would restore prosperity.

The restriction of output under the Agricultural Adjustment Administration can be defended on general sociological grounds which are irrelevant in the present context. Regarded, however, as a means of stimulating recovery, it was clearly beneficial in so far as it tended to increase the propensity to consume by causing a relative shift in the distribution of income in favour of the poverty-stricken farmers. With reference to the recovery in prices, Professor Mills writes: "During the first five months of rapid rise, when farm prices were gaining 51 per cent, prices paid by farmers were advancing only 6 per cent. Subsequently a sharper advance occurred in prices paid, but by June, 1936, these had risen only 19 per cent from their low

<sup>1</sup> Cf., e.g. L. S. Lyon, *The National Recovery Administration*; A. R. Burns, *The Decline of Competition*, Ch. X; C. F. Roos, *N.R.A. Economic Planning*.

point, while average prices received by farmers had about doubled. Although the net loss from the pre-recession level was greater among prices received than among prices paid, the average per unit worth of the farmers product was, in June, 1936, only 7 per cent less than in 1929.<sup>1</sup> It is true that the great droughts were largely responsible for this change, but the A.A.A. legislation deserves a fair share of the credit. Moreover, the relative weakness of the agricultural credit structure had been an important factor in the banking crises, and any measure which improved the position of the farmer, even at the expense of other sections of the community, was calculated to improve the general credit situation. There was also a considerable time-lag between disbursements to the farmers and the receipts of processing taxes by the Treasury, which caused a rise in government debt of about \$800 million between September, 1933, and December, 1934.<sup>2</sup> In this respect, too, the A.A.A. favoured recovery. Unfortunately the reduction in output tended to reduce still further the foreign balance, and thus continued the work of the Federal Farm Board, founded by President Hoover in 1929. The combined effect of the A.A.A. and a very bad harvest in 1934-35 was such a fall in output that grain had actually to be imported. The control scheme for cotton had similar results in depressing the export trades.<sup>3</sup>

4. As a compensating factor—economic as well as political—for the monopolistic character of the codes, the N.R.A. introduced new minimum wage regulations, and, under the famous clause 7a, established the right of collective bargaining which was still retained after the codes had disappeared. Partly as a result, the index of hourly earnings in manufacturing industry rose from 90·8 in 1933 to 107·4 in 1934 and 110·9 in 1935. The slight fall in conventional real wages, which had been apparent in the last half of 1932 and the first half of 1933, came to an end, and the index rose some 10 per cent between 1933-35.<sup>4</sup>

Apart from the rise in real wages, the rise in money wages, by raising prices, lowered the burden of debt; but, with the low elasticity

<sup>1</sup> *Prices in Recession and Recovery*, p. 238.

<sup>2</sup> Cf. Nourse, Davis and Black, *Three Years of the Agricultural Adjustment Administration*, Brookings Institute, p. 436 *et seq.*

<sup>3</sup> Cf. *World Economic Survey*, 1934-35, p. 103; J. W. F. Rowe, *Markets and Men*, pp. 60-63.

<sup>4</sup> This was President Roosevelt's object: "If we now inflate prices as fast and as far as we increase wages, the whole project will be set at naught." (16th June, 1933.) "Conventional" real wages are money wages deflated by the cost of living index. In theoretical discussions real wages usually mean the workers' receipts in terms of the commodity he helps to produce, i.e. product wages. Unfortunately there is no proper index of the latter.

of price expectations, which was, no doubt, a characteristic of the expansion, the rise in money wages in the industries producing heavy goods must have exercised a depressing effect.<sup>1</sup> It is, perhaps, safe to infer that the effect of the Administration's wage policy was, on the whole, unfavourable, and the rise in costs in 1937 may have been one cause of the downturn.<sup>2</sup> The general aim of this policy was, of course, wholly admirable. The bitter experience of the 'thirties lends some support to the view that a redistribution of income in favour of the poorer and spending classes was desirable, if the economy was to operate efficiently without the constant support of a huge government deficit. Nothing which has been said must be regarded as a criticism of that proposition, but unfortunately a high-wage policy is a very unsatisfactory method by which to achieve the more equalitarian distribution which is economically, as well as socially, desirable.<sup>3</sup>

5. The most important contribution of the New Deal to prosperity was the great increase in government expenditure, although this was not, at first, regarded as the central part of the recovery programme. During the first few months of the new Administration, provision was made for increased expenditure by the Unemployment Relief Act (31st March), the Emergency Relief Act (12th May), and titles 11 and 111 of the N.R.A. (16th June). Other measures followed, notably the creation of the Civil Works Administration (October, 1933), and the Works Progress Administration (July, 1935), but there is no need to discuss in detail the allocation of Federal money between different projects or to review the contemporary controversy as to the best form of expenditure.<sup>4</sup> The broad effect of these measures with which we are alone concerned was a rise in the Federal deficit from \$2.5 billion in 1933 to \$3.9 billion in 1934, \$2.9 billion in 1935 and \$4.3 billion in 1936. According to Mr. Gayer's estimates, the net income generating expenditure of the Federal government amounted to \$1.9 billion in 1933, \$3.2 billion in 1934, \$3.2 billion in 1935, and \$4.0 billion in 1936.<sup>5</sup>

The new dependence of the American economy on public

<sup>1</sup> Hourly earnings in the iron and steel industry rose from 87.9 in 1933 to 109.9 in 1935; in foundries, from 82.8 to 93.6. The index of construction costs rose from 80.3 to 92.0 during the same period.

<sup>2</sup> Cf. Meade, *World Economic Survey*, 1937-38, p. 21. It is not implied, of course, that the rise in wage rates was entirely due to government policy.

<sup>3</sup> For an interesting criticism of high-wage policy by a socialist writer, see Strachey, *A Program for Progress*.

<sup>4</sup> For an interesting discussion of this point, see a pamphlet by Nels Anderson, *The Right to Work*.

<sup>5</sup> Cf. Schumpeter, *op. cit.*, p. 1002.

expenditure was clearly seen towards the end of the upswing. In 1936, a year of increasing prosperity, the Federal deficit was swollen by the cashing of Veterans' Bonuses. In 1937, however, this form of expenditure came to an end, and, in addition, government receipts in the form of the new social security taxes amounted to \$1.2 billion, as compared with only \$65 million in 1936. As a result, the Federal government's demand for new money from the capital markets fell from \$3.8 billion in the calendar year 1936, to \$316 million in the calendar year 1937,<sup>1</sup> and this enormous decline was a major factor in causing the collapse.<sup>2</sup>

6. Another measure adopted by the Administration to increase purchasing power was the new tax on corporate profits, introduced in 1936, the effect of which was to prevent the usual increase in corporate savings during the last year of the upswing. The proportion of net profits distributed by certain large companies had fallen from 237.9 per cent in 1932 to 78 per cent in 1933, 80.1 per cent in 1934, and 65.0 per cent in 1935, but in 1936, after the introduction of the new tax, it rose to 79.8 per cent.<sup>3</sup> We have already argued that the increase in corporate savings is probably the main cause of the fall in the propensity to consume during the expansion and the new tax should have been beneficial, if there was any tendency for the rate of growth of consumption to decline; harmful, if the situation was inflationary. In 1936, with production well below the level for 1929 in spite of the increase in productivity and population, the situation could scarcely be described as inflationary, but there were certain bottle-necks and, moreover, the danger of underconsumption had been mitigated by the huge rise in the Federal deficit. In the following year, however, the tax might have been a very useful instrument, if it had not been far too weak to offset the sharp fall in government expenditure. The existence of the tax serves to indicate that the fall in the rate of growth of consumers' outlay in 1937 was due to government policy and private savings, not to an increase of corporate accumulations.

It may be urged against the tax that new investments are largely financed by corporate savings, and any measure which tended to

<sup>1</sup> *World Economic Survey*, 1937-38, p. 101. The deficit in 1937 was \$1.3 billion.

<sup>2</sup> Cf. Hansen, *Full Recovery or Stagnation?*, pp. 286-98: "In the 1933-37 recovery, neither residential building nor foreign investment helped to push forward and sustain consumption and business investment. In their places stepped Federal spending (relief, public works, veterans' bonuses, government loans, guarantees and subsidies to private enterprise)." When this substitute was partly withdrawn in 1937 the expansion came to an end.

<sup>3</sup> *World Economic Survey*, 1937-38, p. 17.

reduce the latter was likely to act as a deterrent in precisely the sphere where a stimulus was most necessary. The government which desires, on the one hand, to stimulate consumption by a fiscal device of this kind and, on the other, to give full encouragement to the adoption of new methods and the deepening of the capital structure, is faced with a serious dilemma. We may, however, hazard the guess that when the tax was introduced, business men were in no frame of mind to launch out on extensive new enterprises and only too inclined to hold their savings as a reserve which would have retarded the rise in monetary outlay. The stimulus to increased consumption was, therefore, perhaps relatively more important.

7. In discussing the disappointing Juglar upswing in the 'thirties, Professor Schumpeter lays stress on the unfavourable political atmosphere.<sup>1</sup> During the first year of the Administration this atmosphere was favourable, for private industry was hard pressed and crying for help, and the monopolistic nature of the N.I.R.A. was attractive to firms which had long been restricted by the anti-trust laws. When, however, the recovery had really begun and the industrialists were able to raise their heads once more, the opposition to the Administration began to grow. It is true that in some ways the latter was responsible. The attitude towards public utilities, for example, had an unfortunate effect, not because the T.V.A. was harmful in itself, but because, to quote Mr. Meade, "Many public utility undertakings . . . felt a growing uncertainty as to the profitability of any investment undertaken by them in view of the possibility of extended government competition with them."<sup>2</sup> The policy of high wages was also ill-advised. Apart, however, from these examples, it is difficult to justify the attitude of the business world. First, the general attack on the Administration's policy of increasing the relative share of the working classes can be condemned, not merely on social grounds, but also because the self-interest which dictated that criticism was unenlightened. Some decrease in the relative share of the rich and saving classes would probably have been accompanied by an increase in the absolute amount of their receipts during the depression, and even during the recovery it would have made unnecessary such a large increase in government expenditure. In the words of the Preacher: "There is a sore evil which I have seen under the sun, namely, riches kept for the owners thereof to their hurt." Secondly, the vociferous protests against the increase in the Federal debt ignored the fact that prosperity depended upon such expenditure and the effect of its

<sup>1</sup> *Op. cit.*, p. 1038 *et seq.*

<sup>2</sup> *World Economic Survey*, 1937-8, p. 21.

withdrawal in 1937 should have afforded the deflationists the object lesson they required.<sup>1</sup> There were, indeed, two main ways in which the Administration could hope to improve the situation : first, by increased spending ; secondly, by a progressive redistribution of income. The conservative critics of the New Deal rejected both alternatives and proclaimed with stubborn fidelity their belief in the out-moded system of *laissez-faire* which had almost encompassed their ruin a short time before. It is clear that the main responsibility for this unfortunate political atmosphere did not rest with the Administration alone but, whoever was responsible, it was undoubtedly an important factor which discouraged long-term investment.

8. No clue to the imperfect nature of the recovery can be found by studying the behaviour of the banks. Reference has already been made to the Banking Act of 1933, and this was accompanied by special measures to relieve the credit situation in agriculture and real estate.<sup>2</sup> After this reconstruction, the reserve banks were able to continue "the policy of monetary ease," which had been their object since the autumn of 1929. Between 1929 and 1934 their holdings of government securities had increased by \$2 billion, and during subsequent years they were held constant at about \$2.5 billion, in spite of the enormous increase in the gold stock. The value of existing gold was raised 69 per cent by the depreciation of the dollar in January, 1934, and between 1st February of that year and 1st July, 1936, the stock increased by some \$3.5 billion.<sup>3</sup> As a result, member banks found themselves in possession of large excess reserves, and discounts with the reserve banks fell to negligible amounts.<sup>4</sup> The stimulus to credit expansion resulted in a further increase in investments held by member banks, which rose from a monthly average of \$8,356 million in 1933—itself a very high level—to an average of \$13,587 million in 1936. "All other loans," however, did not show a comparable increase, and the total only advanced from \$5,188 million at the end of 1933 to \$5,684 million at the end of 1936, for, as we have argued before, changes in demand have usually been more important for this form of

<sup>1</sup> If the increase in Federal debt had been followed by a rise in bond yields the beneficial effects of increased expenditure would have been partly or wholly cancelled. In fact, however, there was a fall in bond yields during the upswing.

<sup>2</sup> The powers of the R.F.C. were widened (June, 1933) and greater assistance was given to insurance companies and smaller manufacturers. The mortgage situation was relieved by the Farm Relief Act (May, 1933), the Farm Mortgage Corporation Act (January, 1934), and the Home Owners' Loan Acts (June, 1933, and April, 1934). See *Reports of the Federal Reserve Board for 1933 and 1934*.

<sup>3</sup> Cf. Kemmerer, *op. cit.*, p. 251.

<sup>4</sup> The average figure for discounts on 1st December between 1934-36 is under \$10 million, as compared with an average of \$670 million between 1922-29.



asset than changes in supply. Contrary to usual experience, the decline in short-term rates of interest, which had begun immediately after the stock exchange crash, continued during the recovery. The average rate on prime commercial paper fell from 1.63 per cent in 1933 to 0.75 in 1936, and other rates recorded a similar decline in the cost of borrowing. It is obvious that, until the eve of the downturn in 1937, banking policy affords no solution to our problem.

We must now consider the contention of several observers that the change in Federal reserve policy in the middle of 1936 created a scarcity of funds which was partly responsible for the collapse. The enormous increase in excess reserves was a source of concern to the many Cassandras whose prophetic vision detected, even in 1936, the imminence of a violent inflation, and it is true that, if the demand for funds had been more active, a huge increase in bank credit could have legally taken place. It was therefore decided by the Federal Reserve Board that the power accorded to it by the Act of 1935<sup>1</sup> should be used and reserve requirements were raised by 50 per cent in July, 1936, and by a further 50 per cent, in two stages, during the first half of 1937. Moreover, in December, 1936, the Treasury inaugurated the policy of gold sterilization, and imports during 1937 were not allowed to increase members' reserves. The effects of this policy were not, however, as serious as might be supposed, for reserves were already so high that members could face a doubling of their requirements without suffering from any crippling strain.<sup>2</sup> Excess reserves were reduced by \$1.1 billion between 15th July and 19th August, 1936, but on the latter date they still amounted to \$1.8 billion. For January, 1937, the figure is \$2 billion, for March \$1.3 billion, and for May \$0.9 billion. When these large figures are compared with excess reserves during the 'twenties, it is apparent that the banks were still in a very strong position.<sup>3</sup> It is true that the reserves were not evenly distributed and some New York banks were obliged to sell government securities. Total sales by all banks amounted to the large sum of \$600 million between the middle of 1936 and the middle of 1937. On the other hand, "all other loans" rose till the autumn of 1937, although production had begun to fall in the summer, and it is fair to conclude

<sup>1</sup> This power to alter reserve requirements was first granted to the President by the Agricultural Relief Act, 1933, and later transferred to the board by the Act of 1935. For a discussion of this Act, see Gayer, "The Banking Act of 1935," *Quarterly Journal of Economics*, 1937.

<sup>2</sup> Cf. *Federal Reserve Board Reports for 1936 and 1937*.

<sup>3</sup> Between 31st January and 31st May, 1937, discounts with the Federal reserve banks rose by \$14 million and bills bought by \$3 million. These sums are, of course, quite trivial.

that, in meeting the new situation, the banks put no direct pressure on industry. Reference has already been made to the unusual decline in short-term rates during the expansion and even in 1937 there was no appreciable rise. The rate on prime commercial paper was less than 1 per cent till March, 1937, when it rose to 1 per cent; rates on acceptances remained constant at  $\frac{1}{4}$ - $\frac{1}{2}$  per cent; and other rates followed a similar course. Whatever the cause of the downswing, it was not the cost or availability of short-term credit.

9. In the long-term market, yields had fallen to the lowest levels reached during our whole period. The yield on government bonds dropped below 3 per cent in 1935, and stood at  $2\frac{1}{2}$  per cent in 1936. (During the 'twenties the minimum was 3.3 per cent in 1928.) On industrial bonds the yield was also extremely low and the difference in the profitability of industry in the two periods is illustrated by the fact that whereas virtually full employment was reached in 1923 when the yield on Aaa bonds had never fallen below 4 per cent, a yield of 2.5 per cent was insufficient to bring about a full recovery in the 'thirties. In the first seven months of 1937, the government bond yield rose by 0.5 per cent, partly as a result of an anticipated—though not of an actual—rise in short-term rates, partly as a result of increasing uncertainty. This was one factor, perhaps of minor importance, in causing the downturn.<sup>1</sup>

10. Although the fall in the foreign balance affords no explanation of the extraordinary length of the depression as compared with the post-war slump, it does serve to explain in part the imperfect nature of the recovery. Foreign lending, which had reached such high levels during the 'twenties, dropped to insignificant amounts and was finally replaced by a net repayment of loans. The difficulties in the way of investment and the growth of trade barriers of various kinds were reflected in a fall in the balance of the U.S.A. Between 1933-36 the latter reached a total of only \$972 million and this figure must be contrasted with a total of \$2,908 million between 1926-29. Thus the decline of some \$500 million a year in external investment was a depressing factor throughout the expansion and the negative balance at the beginning of 1937 was one cause of the decline.

11. It is frequently assumed that the depression was particularly severe in the 'thirties largely because a number of important industries, notably the automobile industry which had occupied a leading position during the New Era, had now grown to maturity. It is obviously foolish to regard the former period as one of extraordinary advance and the latter as one of complete stagnation. In both periods,

<sup>1</sup> Cf. Meade, *World Economic Survey*, 1937-8.

no doubt, new methods and new goods afforded an inducement to entrepreneurs to make important innovations; nevertheless, it is probable that the difference was important, though not, perhaps, so large as some writers would have us believe.

The differences between the expansion of the 'twenties and the expansion of the 'thirties have been analysed in some detail by Dr. Kuznets in one of his bulletins.<sup>1</sup> He concludes that the absolute magnitude of the recovery between 1932-37 was as great as that between 1921-29, and—an apparently surprising fact—"the rate of intensity of participation by total business capital formation was equal to or higher during the recent expansion than the rates prevailing in the earlier expansions."<sup>2</sup> These facts seem to contradict the belief that the recovery was rather weak and that business investment lagged, but the contradiction is only apparent for the absolute levels reached by the various magnitudes in 1937 were below those for 1929, and, most important, these levels were only attained with the aid of enormous government deficits. Secondly, the paradox that business investment and even residential construction showed a relatively large increase during the recovery, as compared with the increase in total commodity product, can be explained by the fact that these branches of production were very severely depressed during the slump. In order to make a more valuable comparison, Dr. Kuznets sets the figures for 1937, or 1936-37, against those for 1929, or 1928-29, and he shows that there was a great change in the relative importance of the different components of capital formation.<sup>3</sup>

Thus the high levels of 1929 were never fully recovered, and in 1937, net income *per capita* (1929 prices) was still some 13 per cent below the peak of the 'twenties. If account were taken of the advance in technical knowledge, the deficiency of the national income in 1937 would be still greater. It is true that total capital formation for business use almost regained the level for 1929, but there was a shortage in the case of producers' durable goods and a still more serious shortage in the case of business construction. In short, the recovery resembled, in some ways, the post-war boom—although it was not, of course, so inflationary. Investment in stocks was substantial, investment in machinery and other equipment was down as compared with the 1929 boom but not heavily down. The major decline was in investment in factories and houses.

<sup>1</sup> *Commodity Flow and Capital Formation in the Recent Recovery and Decline, 1932-1938*. National Bureau of Economic Research, Bulletin 74. The estimates exclude the value of services.

<sup>2</sup> *Ibid.*, p. 9.

<sup>3</sup> *Ibid.*, p. 10.

The depressed conditions in the heavy goods industries cannot be explained by conditions in the capital markets, for bond yields were very low. In part it was due to the lack of confidence after the grim experience of the 'twenties, but in part it was also due to the durability of capital goods. The demand for them can be divided into the usual three categories—widening, deepening and replacement; and the importance of the last source of demand can be seen from the fact that the prosperity of different branches of production in 1937 tended to be inversely correlated with the durability of the products. The increase in the demand for new investment to widen or deepen the capital structure was insufficient to offset the depressing effects of the vast amount of permanent equipment and business premises which had been built up during the 'twenties.

There is clear evidence of a surplus stock of houses. We have already emphasized the fact that the rent index rose during the post-war depression in spite of the fall in national income, but between 1929-32 it fell steadily from 153·7 to 127·8, and the fall continued during the subsequent years. In 1933 a new low was reached at 108·8, and in 1934 the index was 102·1; it remained near this level till 1937. These figures may be compared with the sharp advance from 134·9 in 1920 to 168 in 1924. Between 1920-22 the need for houses was so acute that rents rose in face of falling income, but during the 'thirties not even the recovery in national income could lift the rent index from the low level to which it had declined. (Even in 1937 the rise amounted to only 8 points.) It is not surprising to see that Dr. Kuznets's estimates record a deficiency of residential construction in 1937 amounting to 30 per cent below the 1929 level, and it cannot be doubted that depressed conditions in this branch of industry were responsible, in a very large measure, for the unsatisfactory recovery of industry as a whole.

The material available for estimating changes in the rate of growth of productivity is, to say the least of it, unsatisfactory, but it is preferable to base some provisional conclusions on these indices than to make sweeping factual assumptions on the basis of no statistics at all—a practice not unknown among economists. With this warning we shall now turn to the data.

In the major industrial groups, there was little change in the rate of growth of productivity in the case of railroads and minerals, but there was a large fall for manufacturing industry from an increase of 41·6 points between 1920-29 to an increase of 21·6 points between 1929-37.<sup>1</sup> The electrical industry was the only major group which

<sup>1</sup> The indices are taken from Bell, *op. cit.* Productivity is measured by the index

showed a rising rate of growth of productivity, and, although this technical advance was an important stimulating factor during the 'thirties, it was insufficient to offset the decline in other sectors. Within the manufacturing group the most striking feature was the change in the position of the automobile industry. Between 1920 and 1929 the index advanced by 74.9 points, but in the 'thirties there was a further rise of only 6.3 points. In the steel industry and the paper and pulp industries there were also declines, and the advances in the tobacco and cotton textiles industries were insufficient to prevent a fall in the average.

We shall now examine the varying fortunes of different industries. According to Professor Schumpeter, "this is first and foremost the Kondratieff of electricity" and in the 1937 Juglar "the production of and innovations in electro-technical manufacturing came fully up to expectations so obviously that we need not stay to prove it."<sup>1</sup>

It will be recalled that the index of productivity showed a marked rise in the case of electricity, unlike the indices for the other major groups. Similar evidence of greater relative prosperity is afforded by the figures for output. Whereas total commodity product in 1937 was 11 per cent below the level reached in 1929, the output of electricity by public utility plants was 25 per cent *above* that of 1929.<sup>2</sup>

of output divided by the index of man-hours. A more accurate impression is gained by comparing changes in productivity between boom years in both decades than by examining the short-period changes during the depressions. The statistics are summarized below—

TABLE IX  
CHANGES IN PRODUCTIVITY (1923-25 = 100)

	1920-29	1929-37
ALL MANUFACTURES . . .	41.7	21.6
Automobiles and parts . .	74.9	6.3
Steel, blast furnaces and rolling mills . . .	45.4	18.8
Paper and pulp . . .	43.6	32.8
Cotton textiles . . .	10.8	35.0
Tobacco . . .	48.2	98.7
MINERALS . . .	56.4	56.4
RAILROADS, Class I . .	28.1	29.9
ELECTRICITY . . .	39.5	75.8

<sup>1</sup> *Business Cycles*, p. 1021. Investment in generating plant was low, however.

<sup>2</sup> *Statistical Year Book of the League of Nations*, 1937-8, p. 130.

Professor Schumpeter also assumes that "the current Juglar should include, or partly consist in, another automobile wave," but in this case the facts no longer lend the same support to his theory. We have already seen that productivity was not increasing during the 'thirties at its former rate, and the indices of factory production record the same loss of leadership in the motor car industry—

TABLE X  
INDICES OF PRODUCTION (1923-5 = 100)

Grouping and Weighting	Changes in Points	
	1929-37	1920-9
Petroleum refining (1.67)	34	104
Tobacco (1.02)	25	47
Leather (3.62)	9	7
ALL MANUFACTURES (85.85)	- 10	32
Textiles (18.8)	- 4	31
Foodstuffs (9.05)	- 10	- 2
Automobiles (5.39)	- 14	77
Iron and steel (20.64)	- 12	31
Rubber tyres and tubes (1.41)	- 26	49
Lumber (8.29)	- 59	- 8

Source: *Federal Reserve Board Reports*.

NOTE. In the case of rubber tyres and tubes there is no estimate for 1920 and we have therefore compared the indices for 1929 and 1923.

It is clear from this table that the production of motor vehicles no longer occupied the relatively important position it had held during the New Era. In spite of the inducement to increased production afforded by the great improvement in models, output in 1937 was 14 points less than in 1929, whereas the deficiency for all manufacturing production was only 10 points—figures which must be compared with the increase of 77 points for automobiles between 1920-29, when total output rose by only 32 points. Even the petroleum industry, although it was still relatively prosperous, was not so far ahead of other industries—44 points as compared with 72. Indeed, it is apparent that, whereas between 1920-29 a number of great industries was progressing far more rapidly than industry as a whole, between 1929-37 all the relatively prosperous industries occupy a position much closer to the average, while some groups, such as automobiles and iron and steel, have actually fallen below the average. These facts suggest that innovations, in the comprehensive sense of the term, were proceeding on a far smaller scale during the 'thirties,

with disastrous consequences for the level of gross investment and the prosperity of the nation.

We have now discovered six important explanations of the prosperity of the New Era on the one hand, and the comparative stagnation of the 'thirties on the other. First, there was the huge increase in the stock of capital in the years before the slump in 1929—in this case, the surplus stock of buildings is the most striking example; second, there was a much less marked divergence between the fortunes of different industries, which suggests that innovations in technique, changes in taste, and the invention of new commodities were less important during the later period; third, the rate of growth of productivity had declined; fourth, there was a decline in the foreign balance; fifth, the political atmosphere was unfavourable; and sixth, the high wage-policy of the New Deal was a dangerous method of attempting to achieve what was undoubtedly the supremely important need of the country—a redistribution of income in favour of the working and spending class in order to offset the partial exhaustion of investment opportunities. Unfortunately, we can do no more than guess at the relative importance of these factors, unless some more refined method of inquiry is employed, but we may conclude that taken together they are sufficient to account for the main differences between the two post-war decades in the United States.

## CHAPTER XIX

### SOME CONCLUSIONS AND SUGGESTIONS FOR THE CONTROL OF THE TRADE CYCLE

THE explanation of the events recorded in the preceding section must remain largely a matter of mere conjecture; yet it may be fairly claimed that the theories reviewed in the first part were far from useless in attempting some sort of interpretation. The hypotheses have been employed to account for various phases in the historical cycles, and, although a definite conclusion has usually been rendered impossible by the deplorable inapplicability to real life of the beloved *ceteris paribus* assumption, we have usually been able to make some sort of guess as to the cause of events. In the present chapter we shall try to bring together our results and then, greatly daring, attempt to hazard a guess about the probable course of the trade cycle in the future and the measures by which a fair degree of stability may be achieved. There is little need to emphasize the desirability of thinking about remedial measures well in advance. It is certain that the Marxists are wrong when they attribute the war almost entirely to economic causes, but it cannot be denied that the great slump of the 'thirties was responsible in a very large degree for the rise of the Nazi party and, if totalitarianism of the Right or the Left is to be prevented in the future, the control of the trade cycle is of fundamental importance. In order to do so, however, it is necessary to work out a policy before the post-war investment boom has ended and the danger of a slump is actually at hand.

I. According to the theory of credit, which occupied the opening chapters of the theoretical section, the rate of interest is not permitted to fluctuate by the extent necessary to equate savings and investment, with the result that cash is released when demand increases and absorbed when it decreases. The evidence in Part II showed that the yield, for example, did not vary much during the period under review; the average annual change was only 0.28 per cent.<sup>1</sup> It may be objected that our notion of what constitutes a large change is quite arbitrary, and that the actual fluctuations were by no means as negligible as our reasoning would tend to suggest. The objection, however, does not hold. In estimating the adequacy of historical changes the criterion is stability of income. The very fact that our period was marked by violent fluctuations in the level of effective

<sup>1</sup> U.S. Government bond yield.



demand is in itself an unshakeable proof that the price of credit was partly stabilized. So much for the basic weakness of the economic system.

On the other hand, it would be wrong to suppose that the yield was a purely passive factor throughout the different cycles, and it may be added that the theory of speculation does not support such a conclusion. During the post-war slump, for example, the rise in bond prices, due to the change in short-term monetary policy and the growth in confidence after the end of the inflation, was one factor, though by no means the most important one, in stimulating a recovery. We have also noted that there is little support for the loose statement that the long-term rate is high during the upswing and low during the downswing; speculation often prevents the appropriate yields from moving even in the *direction* required to ensure income stability. As for the principle of increasing risk associated with new bond issues, it has been possible to do little more than suggest that in certain cases the current atmosphere was likely to make this factor of greater or lesser importance. It was probably not of primary significance in the confident years preceding the slump in 1929, and the enormous increase in share issues as a proportion of total issues also weakened its importance; but in 1937, on the other hand, when confidence was weak, it was no doubt a more powerful factor in causing a collapse.

In the later chapters in Part I, we reviewed a number of possible forces which may set the unstable mechanism in motion. Of these, changes in the cost of bank credit proved to be of little use in interpreting events in Part II. In the critical months preceding every downturn we have studied, the change in the cost of bank credit has never amounted to as much as 2 per cent, and it can scarcely be suggested that the business world was much influenced by these minor variations. Moreover, the statistics do not indicate that credit restriction was enforced at any important turning-point by the calling in of bank loans. On the contrary, the downturn in "all other loans" usually lagged behind the turning-point in production, due no doubt to distress borrowing. Bank credit was in any case becoming increasingly less important, and firms were relying more and more on their own resources.

The situation in 1932-33, when the banking system was on the verge of collapse, was exceptional; it was the outcome of the peculiar difficulties of the post-war gold standard and of the structural weaknesses of American banking. The psychological reaction to this crisis was, of course, disastrous, and the contemporary reports indicate that the fall in bank credit was due to a decline in demand, as a result of shaken confidence, rather than to a fall in the supply.

Wage policy is still the subject of one of the most vexed controversies of modern theory, and it can scarcely be claimed that the type of empirical analysis employed in our survey of American business cycles has contributed much towards a solution of the problem. One or two points of interest have, however, emerged. For example, during the post-war boom, wage-cost per unit of output rose in spite of the increase in productivity per man-hour, and this fact indicates that rising money-wage rates may not lag so much behind prices, contrary to the usual Keynesian belief. For the most part, however, we have relied upon the provisional hypotheses in order to interpret events; in other words, we have accepted the broad assumptions on which the theories were based without being able to produce any fresh evidence in their support. It has been assumed, for example, that a sharp cut in money-wage rates in the heavy goods industries will be beneficial, and this theory was used to explain in part the difference between the two major slumps in our period. This particular supposition seems to be perfectly reasonable, and it would be difficult to see how to get much farther with the kind of empirical analysis employed. We may conclude, however, by emphasizing the need for further research in order to provide a fairly reliable index of product-wages.<sup>1</sup>

The theory of the relation, in so far as it serves to explain the cumulative aspect of the cyclical swings, has not been examined in the empirical analysis, for it was seen in the theoretical section that the interaction of relation and multiplier affords plausible explanation of this feature of the cycle. We have, however, given considerable attention to the view that the upper turning-point is caused by a falling rate of growth of consumption, and we have seen that there was no *sustained* tendency during the New Era towards such a decline. (This interesting fact casts serious doubt on much contemporary speculation about the development of modern capitalism.) Paradoxically, however, there were cyclical declines in the propensity to consume and several possible explanations considered. First, profits fluctuate with the state of trade and since the marginal propensity to save out of profit is high, these fluctuations are partly responsible for the short-period changes in the proportion consumed. If, however, there is no long-period shift to profits, there will be no sustained drag on the propensity to consume. Second, there may have been certain long-period forces at work which offset the tendency towards underconsumption as real income increased over the decade as a whole but failed to prevent the short-period changes. Two possible factors seemed to answer

<sup>1</sup> The reader is now referred to the works of Dunlop and Tsiang cited above.

these requirements, namely the rapid growth of consumers' credits and the expenditure on luxury goods from capital gains made during the sustained stock exchange boom. Third, it is possible that although the propensity to consume is sensitive to short-period changes in real income, the standard of living is likely to be adjusted over a longer period and the proportion consumed may show no downward trend in spite of the increase in income.

Whether these explanations are accepted or not, it remains a fact that, in spite of the long-period stability of the propensity to consume during the 'twenties, the short-period changes were on a sufficiently large scale to have set up fluctuations in income according to the theory of the relation and the multiplier. The decline in the rate of growth of consumers' outlay between 1928-29 was probably responsible in some degree for the collapse. Unfortunately for the theory, however, the changes in the rate of growth were not always accompanied by the changes in investment which one would expect, and it is difficult to account for the stability of the years before 1929. A solution is afforded by the great building boom. The demand for houses moves in cycles, and the New Era prosperity was largely the outcome of one of these partly autonomous upswings in construction which, when it came to an end, prolonged and intensified the depression. But in order to explain more fully the events of the whole post-war period it was necessary to pay due regard to replacement demand and technical progress. (a) The increase in the stock of capital during the 'twenties was reflected in the difference between the post-war depression and the Great Depression. A period of sustained progress, when plant is extended and productive capacity increased on an enormous scale, brings with it the danger of a long depression if a slump is once allowed to occur; for it is one of the most tragic characteristics of *laissez-faire* that the severity of the downswing is closely correlated with the prosperity of the upswing. A mere inventory boom will be followed by a far less serious slump than a building boom, but on the other hand it adds little to economic welfare. (b) It is not surprising that improvements in technique and the invention and improvement of consumers' goods should take place at an uneven rate, and these fluctuations would be accompanied by no evil consequences if the rate of interest were determined by productivity and thrift. But the repercussions on an unstable mechanism are of enormous importance and without question they were responsible to a large extent for the striking contrast between the nineteen-twenties and the nineteen-thirties. The statistics have shown that in the earlier ten years productivity was growing rapidly and a number of industries was expanding far more

rapidly than industry as a whole; in the second ten years, however, productivity increased less swiftly and the gap between the different branches of production had narrowed as the newcomers took their place among the long-established industries of the economy. Hence the lack of investment opportunities during the Great Depression.

In conclusion, it would seem that our brief investigation of American business cycles has thrown some light on the theories of credit scarcity and even of wage policy; it has served to indicate the importance, as well as the limitations, of the theory of underconsumption; and it has emphasized the significance of long-period building booms, changes in the stock of equipment and changes in technical progress. We shall now turn to even more speculative matters and discuss the methods by which the trade cycle may be controlled after the war.

II. In the period immediately following the war<sup>1</sup> there is no reason to anticipate a slump.<sup>2</sup> The need for replacement will be so great that investment opportunities should be available on an enormous scale and the danger may well be inflation rather than depression. The rebuilding of bombed cities will not be the only, though it may be one of the most important, factors. In the present conflict the whole economic system of Europe has been switched over to the production of war materials, and the same may soon be true of the U.S.A. As soon as the transition to peace-time production has been accomplished, there will, therefore, be a huge back-log of orders to be carried out. The replacement of machinery has been neglected and this will have to be made good; in addition the production of many forms of consumers' durable goods has been severely restricted and a large proportion of the pre-war stock will then be worn out or obsolete. For example, the producers of motor cars should enjoy a high level of demand after the war; former owners have been unable to replace their models and, while it is true that the petrol shortage has reduced the rate of physical deterioration, it is also true that the stream of new models which may be expected in the post-war years will make many old cars of the middle 'thirties seem ludicrously out of date. Even the textile industries should be working at full capacity to replace the threadbare garments of the population.<sup>3</sup> Indeed, the volume of

<sup>1</sup> I have decided not to change the wording of this page and the next although we have now had 2½ years of post-war inflation. In the main I am concerned in this chapter with the danger of deflation at a later date.

<sup>2</sup> By "slump" we have meant throughout a decline in monetary demand relatively to costs. General disorganization during the transition is another matter.

<sup>3</sup> It may be asked: Where will anyone get the money to pay for these goods? To that question we may reply, in the words of Say, that it will be earned in their production and in the production of the sorely needed investment goods. Special credit agreements will, of course, be needed to restore international trade.

effective demand may be so great that it will be necessary to maintain for a time the war controls on expenditure in order to prevent a serious inflation. How long, however, can we expect this state of affairs to last?

The answer will largely depend upon government policy. With investment opportunities available everywhere and inflation at hand, there is no reason why budget deficits should not be greatly reduced without danger to prosperity.<sup>1</sup> It is only necessary to avoid the extreme folly of the years which followed the last war, when many governments first allowed the war-time inflation to continue and then tried to return with the utmost speed to financial orthodoxy, in the odd belief that a sharp deflation was an essential preliminary to normal prosperity. If deficits are reduced only as private demand increases, a post-war slump need not occur at all. With the maintenance of purchasing power as the criterion of policy then, to use as an analogy the American experience of the 'twenties, the world should be able to pass from war production to the "New Era" without an intervening inventory inflation and serious slump, after the model of 1919-22.

The second danger is that although we may avoid an immediate post-war slump and enjoy an uninterrupted reconstruction boom, the latter may soon wear itself out. We may escape a repetition of 1920-21, but, say the pessimists, 1929 will surely follow, and they may add that, since the main stimulus may be reconstruction without the phenomenal development of new industries, such as automobile production in the 'twenties, we can scarcely expect so long a reprieve. It is true that the trade cycle is bound to resume its normal course, and the pessimists are right to remind us that, even if the world is tidied over the first post-war years by wise statesmanship, a fresh disaster will ultimately overtake us—provided we are foolish enough to let it. But it is surely not too much to expect that, in view of the grim events of the past and our increased experience in state intervention, we should regard the control of the trade cycle as a permanent function of government. If such a policy is to be adopted, by what methods can it be carried out?

1. The traditional remedy was the judicious control of the rates of interest by the banking system. But the moral of the Great Depression is surely that an easy supply of money, however important it may

<sup>1</sup> In the case of the United Kingdom, it will probably be unwise to release forced savings for several years after the Armistice. Their release at a later stage should prove useful to offset a tendency towards declining activity. Indeed, the amount to be repaid may be about as great as a year's net investment.

be as a necessary *condition* for recovery, is quite impotent to bring that recovery about. The reverse is not true during an inflation, for, as Mr. Hawtrey has pointed out, there is no limit to the extent to which the rate can be raised, and if the usual advance of 1 or 2 per cent has no effect, an advance of 20 or 30 per cent will certainly put a brake on investment! We may conclude that little reliance should be placed upon monetary policy in either the long- or the short-term markets as a means of counteracting a tendency towards declining investment in the later stages of an upswing or as a lever to raise the economy from the depths of a depression; if, however, the supply of credit is restricted by the calling in of loans or by a hitherto unprecedented rise in the short-term rate, an inflationary situation may theoretically be brought under control. Even in the latter case there are serious obstacles if the inflationary pressure is so strong that a steep rise in rates would be required. The cost of the national debt would be increased with serious effects on the taxation of work and enterprise. Furthermore, in a seriously inflationary position the pricing system is unlikely to reflect with sufficient accuracy what are considered to be national priorities.

2. If the propensity to consume could be altered by swift, smooth changes in the distribution of income, the trade cycle would be brought completely under control. Signs of slackening activity would warrant measures to increase the share of the working class; signs of inflation would call for steps to increase the relative share of the saving class. In considering the means by which these changes might be brought about, it is necessary at the outset to exclude wage policy. An attempt to increase the share of the working class and thus raise the propensity to consume and the level of employment, is fairly certain to be foredoomed to failure if the method adopted is a general advance in money-wage rates. As we have seen in the earlier chapters, the outcome may be a rise in real wages and a fall in employment; while the producers of durable goods will be induced by the rise in money costs alone to postpone production. Fortunately, however, there are a number of other devices which may be employed. Heavy death duties will tend to reduce the propensity to save.<sup>1</sup> The money is taken from people

<sup>1</sup> It is generally believed that death duties in the U.K. are already so high as to preclude the possibility of a further rise. This is not so. From an estate of £1000 only £20 is taken; from one of £20,000 only £2,400; and from one of £100,000 only £26,600. One has to leave £800,000 before half is taken away in death duties, yet every little saver with a few hundreds in the Savings Bank imagines that the greedy Exchequer will seize half of his capital if he dies! The highest rate is 66 per cent levied on estates of £2,000,000 and upwards, and even this rate is too low. Why should an heir be allowed to inherit even one-third of £2,000,000 which he himself has done nothing to earn?

who would probably save it and can be used to provide allowances for poor families. Moreover, the anticipation of heavy duties may in itself tend to discourage saving from current income. It is probable, however, that the increase in consumption which can be brought about in this way will be insufficient to offset a strong tendency towards decline. A high rate of income tax is useful for purposes of redistribution, and it should be used for this purpose within limits. But if the rate is too high, it will discourage incentive, and a sharp rise during a downswing would obviously be attended with disastrous consequences long before the effect on consumption could be felt. A tax on company reserves is clearly desirable in order to reduce one of the most important forms of saving, but in this case also there are limits to an indiscriminating rise in the rate or the incidental disadvantage of depriving industry of its most important source of funds for investment projects will outweigh the beneficial increase in consumption.<sup>1</sup> Each of these fiscal methods may be used within limits in attempting to control the trade cycle, but each suffers from the defect that it may be impossible to adjust it with sufficient rapidity to suit the changing phases of the trade cycle. For this reason it would be unwise to rely solely on taxation in order to alter the propensity to consume by altering the distribution of income.

3. Since short-period changes in the distribution of income present certain difficulties it will be necessary to rely to a large extent on changes in government expenditure. Public works are a time-honoured remedy for the trade cycle and they still remain one of the most useful instruments of policy. On the other hand, the term "public works" is unfortunate, for it implies that the scope for government expenditure will be somewhat restricted. As Keynes pointed out again and again, effective demand will be maintained just as well by paying men to dig holes in the ground and fill them up again as by the traditional projects for building roads and bridges. It is therefore nonsense to say that the government can spend money in only a limited number of ways, and that its ability to deal with the trade cycle is restricted accordingly. But it is true, of course, that the amount of work which could usefully be done in any country is so great that the men employed on government work should be able to make an important contribution to the general welfare. Moreover, expenditure may take a direct form such as allowances to poor families with the same beneficial effect of

<sup>1</sup> Clearly the solution is a heavy tax on company profits which are neither distributed nor invested in the firm. The whole proceeds of this tax might be repaid if the idle reserves were spent within one year; only half might be returned if two years elapsed; and so on. This seems to evade the difficulties mentioned above.

maintaining employment at a high level, in addition to mitigating in some measure the injustices of the distribution of wealth. It is not merely the recipients of government funds who benefit. The increase in demand will stimulate activity throughout the economy as a whole by means of the multiplier and the relation.

Although changes in government expenditure are a more flexible instrument for control than changes in the distribution of income by fiscal methods, it may be impossible for non-economic reasons<sup>1</sup> to reduce outlay with sufficient speed during an inflation, and various measures for controlling consumption such as those adopted during the war, will then be necessary. When trade is declining it may not be possible to start work on such public projects as the improvement of housing for some months—although detailed programmes should be worked out in advance and kept at hand. Theoretically, old-age pensions can be doubled and family allowances increased overnight, but the political difficulties are obvious.

Fortunately, even if there are limitations to the increase in Government expenditure there is still one remedy which can cure any decline in effective demand due to a fall in private investment. The remedy is a change in the method of financing ordinary expenditure. After the war the British Exchequer will probably be spending something between £2,000,000,000 and £3,000,000,000 a year. Total *ex ante* net saving and investment at full employment will probably be about £750,000,000, and the initial decline in investment is not likely to exceed some £300,000,000—due probably to a slump in foreign trade. If the Government remits indirect taxation by £300,000,000 to £400,000,000 or reduces the income tax by 3s. to 4s. in the £, thus meeting, say, one-eighth of its ordinary expenditure from increased debt, it will probably be able to offset completely a decline in effective demand. If not, it has the other seven-eighths of its expenditure to play with.

4. But there is still one nightmare which haunts the sleep of many economists when they try to formulate a scheme for the control of the trade cycle. Without question, deficit expenditure will be a necessary instrument of policy in the future if any serious attempt is to be made to prevent the periodic growth of unemployment. Are we therefore to be faced with a continuous increase in government indebtedness, and, if so, can it go on for ever?

First—and this is a point of the greatest importance—the amount

<sup>1</sup> Such measures may check the development of a *cumulative* decline, but more specific assistance may have to be given to those industries (e.g. the export trades) which suffer from the initial shock.



of public expenditure necessary to prevent a decline will as a rule be far less than is generally supposed, because, if that expenditure is made in time, the *cumulative* downswing will never be allowed to begin. As we have already seen, a steep downswing and severe depression are due, not merely to the initial decline in investment, but also to the secondary effects of that decline on all branches of activity, and it is more than likely that these cumulative repercussions are more dangerous than the first decline which started the slump. It will only be necessary, therefore, to spend government money to offset the initial fall in investment and it is wrong to suppose that the state will be obliged to fill up troughs as deep as those which occurred in the past. The level of private investment will still fluctuate, but only mildly as compared with the great waves of an uncontrolled economy and the scale of the necessary government expenditure will be correspondingly reduced.

Secondly, let us suppose that only cyclical disturbances take place, unaccompanied by any long-period trend towards underconsumption or inflation. In these circumstances it should be possible for the government to reduce its debt in good years to a sufficient extent to compensate for the increase in bad years, and there is no reason to anticipate an ever-increasing volume of public indebtedness.

It may be objected, however, that we have dodged the issue by assuming only cyclical changes, and that a long-period tendency towards underconsumption is a virtual certainty. The inevitability of over-saving has, perhaps, been taken a little too much for granted by many underconsumptionists—such bold predictions are always dangerous. During the great period of progress in the U.S.A. after the last war the proportion of income consumed and the rate of increase of consumption did not decline over the decade as a whole. Although cyclical changes did take place these were no more marked at its end than at its beginning. This was partly explained by the fact that there was no long-period shift in the distribution of income at the expense of the working classes, but is there any reason to anticipate such a change in the future? It is true that the degree of monopoly will probably increase, but this may be offset by various measures to make the distribution of income more equitable and by the growing strength of organized labour. Apart from changes in the distribution of income one might, however, expect a falling propensity to consume due to the general rise in income *per capita*. Certainly there was no long-period decline in the 'twenties, and with government expenditure and taxation at a high level there may be none in the future. But serious difficulties may be caused by a declining population and constitute,

indeed, the most important argument of the underconsumptionists. With fewer and wealthier people in the industrialized areas an insufficient expenditure on consumers' goods may well develop. As the number of children declines the proportion of income which must be spent on essentials also declines, and although a large part of the residue may be absorbed by better schools, more expensive holidays, etc., it is likely that the proportion of income saved will increase. The effect of fewer families on the building industry is too obvious to require emphasis. On the other hand, there will be more old people who are living on past savings.

It is possible, of course, that deflation may be prevented by a series of new inventions or by the development of unexploited regions in various parts of the world. Indeed, the pessimists to-day often commit the same error as the optimists during the 'twenties by projecting far into the future the events of the recent past. Just as the American business men in the 'twenties thought that economic stability was assured, so these gloomy prophets are inclined to suppose that, when the transition to peace has been accomplished, the bad 'thirties will be repeated, and only periodically mitigated by incomplete recoveries. Such fears may perhaps be unfounded, and it is somewhat foolish to be disturbed at the present stage by the danger of chronically inadequate effective demand. The immediate task is to devise a technique for the maintenance of full employment, not to despair because budget deficits subsequently incurred in bad years may not be exactly offset by budget surpluses from good years. Indeed, the removal of cyclical fluctuations would in itself help to avert the danger of such long-term difficulties by reducing risks and thus lowering the marginal cost of borrowing.

As a matter of interest, however, we shall suppose that the worst does happen and then consider the possible remedies. The first which suggests itself is a strenuous effort to make long-term credit cheaper and more plentiful. It is difficult to do so quickly, but given time a consistent policy of low short-term rates can pull down bond yield as well. Special measures to provide cheap funds to small firms should also help. The Government can contribute in another way by not overburdening the long-term market after the war with large-scale funding operations running into thousands of millions of pounds. Since very low long-term rates may ultimately be needed, it will be prudent to accept a large floating debt as the normal thing. (Funding would also mean substantially higher taxation with a bad effect on consumption and incentive.)

In addition to these measures, we can run a Kindersley campaign in reverse and replace the squander bug with a virtuous spending

angel. Furthermore, in the long period, it would clearly be rational to absorb part of the surplus labour force by decreasing hours of work. This may seem an unwise step since it is so desirable to raise output per head, but if average long-term unemployment is only about 10 per cent (i.e. equivalent to five to six years' technical progress in the U.K.) there can be no serious objection to raising the standard of living in this way rather than another. The main evil of unemployment of the type imagined would not be its magnitude but its incidence; it would mean *complete* unemployment for months or years for a fraction of the population. Unless one adopts a stern and narrow attitude to work and income, there is nothing retrograde about spreading such unemployment and transforming it into leisure.

Another possible solution would be a reduction in the inequality of income distribution, which could be accomplished gradually even if it is very difficult to do so with sufficient speed during the trade cycle. But such a policy would have to be administered with the greatest care, or more harm would be done than good. Greater equality of earned income would reduce incentive, and the direct taxation needed for ordinary revenue purposes will probably go as far as it is safe to go in this direction. Nor will heavier taxation of unearned income help, for this will encourage people to put their money into safer and more liquid investments. Taxes on capital values, which fall on liquid and illiquid holdings, are more hopeful. High death duties will help but, although it has been argued above (p. 194, etc.) that substantial increases are possible, they may not bring in enough revenue for the purpose in hand. (A doubling of yield would only produce another £100,000,000.) But is it desirable to go beyond this and hold a capital levy?

There are good grounds for regarding such a levy as desirable. A large part of the national debt could be repaid, and the budgetary economy thus achieved would make possible a cut in indirect taxation which falls heavily on the lower income groups who have a high propensity to consume. Alternatively, income tax could be lowered, which would stimulate enterprise and have a similar effect to a rise in the marginal efficiency of investment.<sup>1</sup> It has also been suggested that capital levies should be imposed with the more specific purpose of wiping out any increases in the national debt which occurred because of a full employment policy.

The difficulties, however, speak for themselves. First of all it is

<sup>1</sup> A capital levy sufficient to reduce the probable post-war national debt by one half, would release sufficient revenue to make possible a reduction of 2s. 6d. in the income tax, less the amount of tax levied on interest on the cancelled debt.

no easy matter to compute the capital sums involved. Secondly, the political opposition would be tremendous, and would give rise to so much hostility and uncertainty as to discourage enterprise and investment. The capital levy may be needed, but if it is to be used at all it should be only after a great war which has swollen the national debt to unbearable proportions. As a periodic instrument of employment policy it is to be avoided.

Nor are the offsetting advantages of a periodic levy very great, for the probable growth in the national debt due to deficit spending is not likely to be very terrifying, even if all the many powerful measures listed above prove to be inadequate. It is true that one should reject the assumption which some economists seem to make, that a rising national debt need cause little concern, because the service charges are merely transfer payments. The money has to be raised by taxation, which will tend to reduce consumption if the increased taxes are mainly indirect; if payers of income tax bear the brunt, consumption may also be affected to some extent and incentive will undoubtedly suffer. Fortunately, however, the rise in national income and the yield of taxation may prevent the total burden of debt from growing serious, even if there is a long-term budget deficit. With full employment, the national income of the United Kingdom might be expected to rise on the average by £100,000,000 a year, which would probably increase the yield of taxation, levied at constant rates, by £30,000,000 to £35,000,000 per annum. Now £20,000,000 would meet the service charge on an annual increase of debt of about £800,000,000 with the average cost of borrowing at  $2\frac{1}{2}$  per cent. Nothing like £800,000,000 a year should, of course, be required to prevent long-term unemployment; probably one-quarter of this amount would be enough even in the most unfavourable circumstances which it is reasonable to expect.

Finally, there can be no justification for paying even  $2\frac{1}{2}$  per cent on increased government debt required to maintain full employment. Such a rate is sensible only when the economy is working at something like full capacity, for the Exchequer is then competing for what savings are available, and these may be inadequate to meet extra calls if inflation is to be avoided. But with insufficient effective demand a budget deficit does not leave other borrowers short nor is it desirable to encourage thrift by attractive issues; the government is merely raising total expenditure to the optimum level. Why should the taxpayer be burdened with heavy service charges in such circumstances? The rational course is for the government to borrow from the commercial banks, and to do so at the extremely low rate required to cover the extra prime costs in their administration.

5. Hitherto, we have referred to "full employment" in a rather loose way. If competition and the mobility of labour were perfect, as in the simplified models of many theorists, the term would have an unambiguous and obvious meaning. When, however, mobility is imperfect, full employment will be reached in some industries when there are still large reserves of idle workers in others, and, in the short run, even an enormous rise in wages in the prosperous trades would be insufficient to cause the necessary transfer from the depressed trades. Full employment is, therefore, a somewhat ambiguous term. It may be taken roughly to mean the maximum degree of employment which can be achieved without causing a huge inflation of prices and wages, and it is clear that in a non-totalitarian peace economy there will always be a certain margin of unemployment. This margin may be regarded as the price of personal freedom and, with generous social services, the price should not be excessive. The size of the margin will, however, be governed in no small measure by the semi-monopolistic policy of the trade unions. If they adhere strictly to rules against the dilution of labour, and if they seize every opportunity to clamour for a rise in wages, the inflationary minimum of unemployment will be all the greater. It is true, of course, that wages should rise in prosperous trades relatively to wages in the depressed trades, but the unions are likely to claim an advance in the one without permitting a decline in the other. Thus the government's attempt to remove unemployment may be prematurely checked from fear of inflation. The possibility of restricting unemployment to a narrow margin in the post-war years will depend to a very large extent upon the adoption of a more moderate and less sectional policy by organized labour. As for the State, it can help in other ways by attempting to diversify industry in each region and by facilitating mobility.

6. So far the international aspects of trade cycle control have not been mentioned, and it is clear that certain modifications in the argument are necessary when we pass from a closed to an open economy. If one country adopts an expansionist policy at a time when others, still faithful to the orthodox teaching, are earnestly deflating, the balance of trade will move against the former, with depressing effects on total investment. In a largely self-contained economy such as the U.S.A., internal policy is much more important than foreign trade, but in the case of, say, the U.K., where exports are of enormous importance to internal prosperity, this is not true. If she adopts a full employment policy while some other major countries do not, she may well be faced with a heavily adverse balance of trade. In these circumstances it

would be possible for the U.K. to depreciate the external value of the pound, but inelastic overseas demand and competitive depreciation may make this step unsuccessful. Alternatively, she could raise her tariffs or resort to exchange control, but here too the danger of provoking similar action in other countries must be faced, and some of the economies of international trade might have to be sacrificed to internal stability. In view of these facts there is no need to emphasize the importance of international co-operation, not merely with regard to the foreign exchanges, but also in the far more important sphere of trade cycle policy, where an effort should be made to co-ordinate the actions of the different governments during all the phases of the cycle. Or if this is not possible the principal nations may at least agree that if one of their number fails to keep up employment and thus puts its neighbours into difficulties, the latter will be free to discriminate against the offender who is pledged not to retaliate. Such a policy is foreshadowed in the Bretton Woods plan. Unless some international agreement on these matters is obtained, full employment may only be possible at the cost of bilateralism and autarchy, a bleak prospect for the post-war world.

CHAPTER XX  
POSTSCRIPT

THIS book has been concerned in the main with the effect of monetary demand on the level of employment. Since the war, there has been purchasing power in plenty but the anticipated frictional unemployment has emerged and, more ominous, unemployment and idle-time have been caused by the shortage of fuel and other raw materials. The danger of widespread idleness remains and may become actual at any time if, even apart from the lack of coal, we have not the wherewithal to buy materials from abroad. These new difficulties cannot, however, be discussed here, and we shall content ourselves with a reference to certain developments which will affect the course of the trade cycle in the future.

On the eve of the invasion of Normandy, the coalition Government published a White Paper<sup>1</sup> in which it stated: "The Government accept as one of their primary aims and responsibilities the maintenance of a high and stable level of employment after the war." The various causes of unemployment were analysed and a variety of remedies appropriate to each prescribed. We shall content ourselves with noting only one or two main points.

It was admitted that the achievement of the Government's aim might involve budget deficits but the Government stated its readiness to accept this abandonment of orthodox finance in bad years. It was laid down, however, that the Government would also try to achieve "budgetary equilibrium" over a longer period. Now in practice the country might clearly be faced with a dilemma if it tried to follow this policy. If there were a secular weakness in effective demand it might be necessary to choose between unemployment and a chronically unbalanced budget. On the other hand some of the criticism directed against the Government on this point by Sir William Beveridge and others was a little unbalanced.<sup>2</sup> The first essential was to ensure the acceptance of an anti-cyclical policy. A good many years will have to elapse before one can say whether the attempt to maintain effective demand is resulting in a long-term budget deficit or not. Meanwhile the country will have become accustomed to the full employment policy, the unorthodox will no longer appear so frightening, and it is scarcely likely that the policy will ever be seriously

<sup>1</sup> *Employment Policy*, Cmd. 6527.

<sup>2</sup> *Full Employment in a Free Society*.

weakened as a result of speculation about the danger to the secular budget. In any case, there is no reason to regard as inevitable a tendency towards long-period overproduction. It seems a remote possibility at the moment!

The White Paper was criticized more fairly on the ground that it did not propose an entirely satisfactory cyclical policy. Too much emphasis was placed upon public works and too little regard paid to the advantages of reducing taxation. It is desirable that the additional income resulting from a full employment policy should be taken in the form of goods and services which the people want most, and should not be confined to additional roads and buildings alone. If demand is stimulated by leaving more money in their pockets, this result will be more nearly achieved. Furthermore, lower taxation removes a drag on the incentives to work hard and show enterprise and initiative. Similiar criticism may be directed against Sir William Beveridge's proposal to maintain demand by expenditure on his "social priorities." The most important item in his list is housing and this will in any case have ceased to be such a high priority before a serious inadequacy of expenditure, of the type he envisages, becomes apparent.

In the U.S.A., where a recurrence of pre-war difficulties is likely to occur at an earlier date, an important step was taken in the right direction by the passage of the Employment Act of 1946.<sup>1</sup> In the debates in Congress, it became apparent that there was a good deal of support for unbalanced budgets in bad years, although there was the same hesitation, apparent in the White Paper, with regard to deficits over a longer period.

It has been fashionable in recent years to be very pessimistic about employment prospects in the U.S.A. Of course a slump may occur at any time and, if it does, the Administration's attempt to carry out its policy may meet with only partial success. But it is wrong to underestimate the change in the American attitude which has taken place and, apart from policy, it is very wrong to suppose that the serious inadequacy of private demand, which was so evident in the 'thirties, will necessarily recur and wreck such havoc once more. In short, if there is a slump it may be followed by a quick recovery as in 1921 rather than a slow and partial recovery of the 1932-7 variety. A number of encouraging features may be listed. (1) It is twenty years since the last building boom reached its peak and the need for houses is acute. There also appears to be much scope for other forms of home investment and to this must be added the effect of substantial

<sup>1</sup> For a discussion of this Act, cf. Hansen, *Economic Policy and Full Employment*.



lending overseas. (2) Although it is a little early to judge, there are some indications that the propensity to consume has moved up to a higher level. At all events, it will be some time before the strong demand for consumers' durable goods will be satisfied. With regard to motor cars, for example, the outlook is favourable as compared with 1929. It should also be noted that consumers are not heavily in debt as they were at the outset of the Great Depression. (3) Apart altogether from employment projects, Federal expenditure is likely to be three or four times as great as in the 'thirties. (4) The ability of the economy to withstand cyclical shocks has been increased by the reform of the banking system and by the existence of government lending agencies, which should be particularly important in assisting the farmer. No doubt the list could be extended, but enough has been said to counteract the unduly gloomy prophecies.

Finally, we may emphasize that, although it is fairly easy to outline an employment policy, once the initial prejudices have been overcome, it will be a very different matter to put it into practice. The real difficulties are to decide just when to act, and to act quickly and to the right extent. It will be impossible to avoid a policy of trial and error and even if the errors do not result in a high percentage of unemployment, they will appear grievous enough to those who are directly affected by them. Now to some people, an admission of this kind appears to indicate the futility of all employment policies designed to operate in a capitalist society. If, they say, we cannot provide work for everyone all the time, we must change the whole basis of the economy, and by means of socialist planning provide complete security. It need scarcely be said that arguments of this kind are naïve. Planners are also faced with uncertainties and were not particularly successful in dealing with the fuel shortage in the spring of 1947! Nevertheless, it may be worth while to turn for a moment to fundamentals and ask whether the problem would be much altered by socialization.

It is frequently claimed that unemployment appears because under capitalism "production is for profit, not for use." If this means that the people in general, including the workers, do not benefit from capitalist production, it is, of course, nonsense. But what is often meant, I think, is something different. During a slump useful goods which might be produced are not produced because it would not pay the capitalists to do so. Obviously this is wrong but it does not follow that the fault lies inherent in the capitalist system. Even in a socialist economy the same thing might happen, unless a full employment policy of the type so frequently prescribed for a capitalist economy were adopted. First, it must be appreciated that in a developed

society with a complex division of labour, detailed control from the centre is impossible. There must be a considerable devolution of authority to the hundreds of thousands of managers if the economy is to work at all. Devolution, however, requires some check on management, and by far the most useful check is the balance-sheet. Managers cannot simply be instructed to produce so long as their output is useful. If there is to be any kind of coherent pattern in the economy, they must cover their costs. We may now return to the criticism of capitalism. It is not true that production will cease if there is no profit, for profits fluctuate violently with the trade cycle and firms are sometimes in a position to do little more than cover their prime costs. If "use" were the only criterion in determining output, it would not only be profits, but wages, salaries and depreciation as well, which would not be fully covered. Furthermore, in the longer period, management and risk-bearing are scarce factors and their cost must be met. The objection to "production for profit" may be paraphrased as an objection to "production for costs."

Clearly the remedy is not to dispense with the balance sheet but to ensure that aggregate monetary expenditure is sufficiently large to make possible full employment without an infringement of sound accounting principles on the part of the managers. The problem is fundamentally similar under socialism. The managers in socialized industries cannot simply be instructed by the State to behave in a certain way without regard to their accounts. Of course, subsidies could be given, but one could also subsidize private firms. Grave uncertainties, too, would confront the socialist planners. They would not have a precise knowledge of the intentions of their managers because, if there is to be anything like sufficient decentralization to ensure flexibility and provide scope for initiative, the managers must be left to a large extent to make their own plans, untroubled by ceaseless directives and instructions. Of course, the State could obtain enough information to form some reasonable guesses about their production plans, but the same is true under capitalism. Finally, in a country such as the U.K., the major source of uncertainty will be developments overseas.

As for structural and frictional unemployment, they are liable to appear in any dynamic economy, but it is true that they might be kept at very low levels by the adoption of Russian methods. In the U.S.S.R., there is no unemployment pay and those who are out of work are liable to be conscripted. Furthermore, trade unions are not allowed to prevent the mobility of workers. Admittedly, the decadent Western democracies with their belief in equity and freedom

for the worker, are at a disadvantage in not being able to adopt such methods. But I imagine that even many of the "fellow-travellers" would regard slavery as too high a price to pay for a little more security of work. We may conclude that, just as there is no reason to expect greater equality under socialism, so there is no reason to suppose that the problem of unemployment would be radically altered by a change in the ownership of capital. A more general appreciation of these facts would have a profound influence on the political future of the world.

# APPENDIX A

## STATISTICS EMPLOYED

- (1) FEDERAL RESERVE BOARD (1923-25 = 100)—  
Total industrial production; factory production; mining production; production in major industrial groups; factory employment; freight car loadings; department store sales and stocks; construction contracts awarded—(three-month moving average of data of F. W. Dodge Corporation for thirty-seven Eastern States). All indices adjusted for seasonal variation.
- (2) BUREAU OF LABOUR STATISTICS—  
Wholesale prices (1926 = 100); factory pay-rolls and employment (1923-25 = 100). All three unadjusted.
- (3) NATIONAL INDUSTRIAL CONFERENCE BOARD (1923 = 100)—  
Hourly and weekly wage rates, money and real, in all manufacturing industry and in various sub-groups. Unadjusted for seasonal variation.
- (4) COWLES COMMISSION (1926 = 100)—  
Share prices (unadjusted).
- (5) PAUL H. DOUGLAS—  
Hourly and weekly wage rates, money and real (1914 = 100). Only used in discussion of post-war boom.
- (6) F. C. MILLS—  
Indices of prices and production with various bases which are given, in each case, in the text above.
- (7) Y. S. LEONG—  
Indices of production of consumers' goods, producers' goods, durable goods and transient goods (1923-25 = 100). Seasonally adjusted.
- (8) BROOKINGS INSTITUTION (S. BELL)—  
Indices of productivity per man-hour and wage-cost per unit (1923-25 = 100). For definition of terms, see page 103 n. above.
- (9) NATIONAL BUREAU OF ECONOMIC RESEARCH (S. KUZNETS)—  
(a) Estimates in 1929 prices, of gross and net national product, consumers' outlay, gross and net investment with subdivisions thereof; (b) estimates in current prices of gross and net savings of: (i) all government bodies; (ii) all government bodies plus business concerns (savings of enterprises).
- (10) OFFICIAL ESTIMATES (STATISTICAL ABSTRACT)—  
Net imports of gold, net merchandise balance of trade, changes in Federal debt (current dollars), yield on U.S. bonds.
- (11) FEDERAL RESERVE BOARD—  
Deposits, discounts, acceptances, loans and investments (current dollars); short-term rates of interest.
- (12) MOODY'S INVESTOR SERVICE—  
Industrial bond yields.

## APPENDIX B

### NOTES ON THE FEDERAL RESERVE SYSTEM

THE empirical section presupposes a certain knowledge of American banking. If the reader requires to refresh his memory on the technicalities, he may refer to the standard works by Burgess and Kemmerer cited above, or to a more recent and very thorough study by Peterson, Cawthorne, and Lohman, entitled *Money and Banking* (Macmillan, New York, 1941). The following notes may be convenient for reference.

- (1) Reserves of Federal reserve banks—
  - (a) Cover for deposits is 35 per cent gold (after 1934, gold certificates) or lawful money.
  - (b) Cover for Federal reserve notes was 40 per cent gold and 60 per cent commercial paper between June, 1917, and 27th February, 1932. On the latter date the Glass-Steagall Act permitted the use of U.S. government obligations for collateral as well as commercial paper. On 30th January, 1934, gold certificates replaced gold.
  - (c) The Emergency Banking Act of March, 1933, permitted the issue of Federal Reserve Bank notes against any sound collateral without gold cover. These notes have been gradually retired.
- (2) Minimum reserve deposits of member banks with Federal reserve banks—
  - (a) Between June, 1917, and August, 1936, 13 per cent of demand deposits in New York and Chicago; 10 per cent in other reserve cities; 7 per cent in country banks. Reserve against time deposits was 3 per cent everywhere.
  - (b) Between August, 1936, and May, 1937, reserve requirements were doubled in three stages (16th August, 1936, 1st March, 1937, and 1st May, 1937).
  - (c) On 4th April, 1938, all requirements were lowered by about 12½ per cent.
- (3) The reserve banks may change the size of the reserve deposits held by member banks as follows—
  - (a) By rediscounting high-class commercial paper, or by making advances against the member's promissory notes. Formerly the latter had to be secured by U.S. Government securities, but the Glass-Steagall Act, amended by the Emergency Banking Act of 1933, permitted the use of any form of sound collateral.
  - (b) By purchasing acceptances, drawn against third-party banks, from members, or by purchasing acceptances in the open market.
  - (c) By purchasing securities, mainly U.S. Government obligations.
  - (d) By making loans to individuals or business corporations (amendments of July, 1932, March, 1933, and June, 1934).

(4) Member banks extend credit in the following ways—

- (a) The purchase of securities.
- (b) Loans on securities which are subdivided as follows: (i) Open-market loans to brokers in New York City at call or for a specified time. (Hence call rate and time rate.) (ii) Customers' loans to brokers outside New York City. (iii) Customers' loans to non-banking borrowers. The latter are used for a variety of purposes, some commercial and industrial, as well as to carry securities.
- (c) "All other loans," i.e. total loans less security loans. This affords the best rough indication of the volume of credit for productive purposes. It includes: (i) open market purchases of commercial paper and acceptances drawn against institutions other than member banks; (ii) loans to customers on security of merchandise, real estate, farm chattels, instalment paper, etc., or without security. (Note: bills accepted by banks for their customers are included in (ii) and the subsequent purchase in the open market of acceptances drawn against other member banks cannot, therefore, be included in (i), or we should be guilty of double counting.)

Commercial paper is largely used to meet the needs of internal agriculture, commerce, and industry for working capital and even for longer-term credit. Since 1920, however, this form of borrowing has decreased in importance, mainly because business firms are relying to an increasing extent on their own reserves for working capital.

Acceptances are largely used to finance international trade and provide capital for the holding of readily marketable primary products.

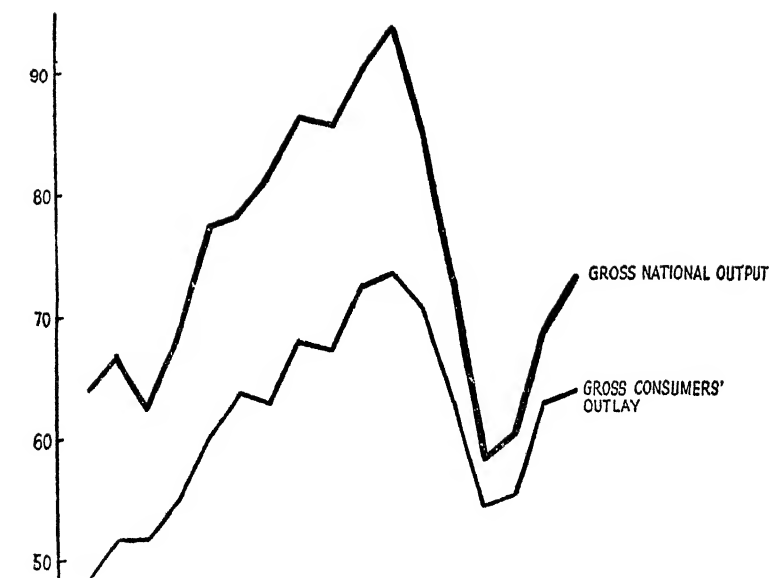
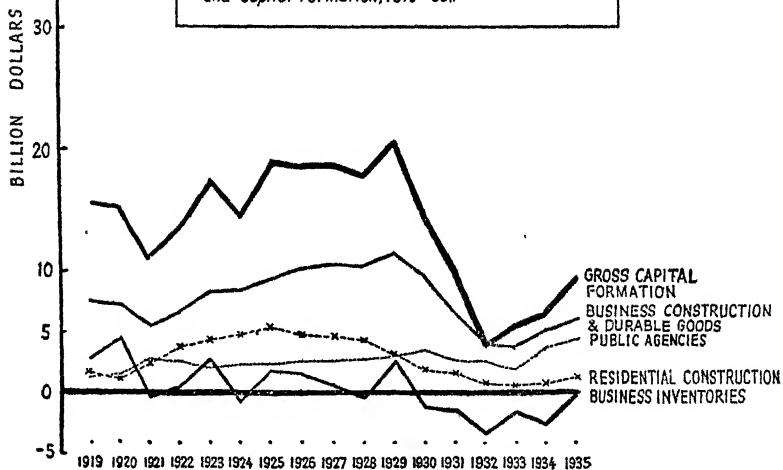


CHART OF GROSS NATIONAL OUTPUT  
CONSUMERS' OUTLAY AND GROSS  
CAPITAL FORMATION IN 1929 PRICES.

(Based on Kuznets's estimates in *National Income  
and Capital Formation, 1919-35.*)



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#### Abbreviations

- Brookings: Brookings Institution.  
 Nat. Ind. Conf. Board: National Industrial Conference Board.  
 N.B. of E.R.: National Bureau of Economic Research.

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